AtmoSci

Professional Weather & Climate Services

Forensic Investigation of the Site-specific

Meteorological Conditions at

610 10th Street
Fennimore, WI 53809

for

Case 2019CV000116

prepared by

Jason R. Webster, Ph.D.

15 January 2020

Preface

AtmoSci was retained to review and analyze meteorological conditions affecting the Property located at the 610 10^{th} Street, Fennimore, WI 53809 with regards to Case 2019CV000116. The findings and opinions in this report are within a reasonable degree of meteorological scientific certainty and are based on the meteorological data, reports, and other information I have reviewed together with my training, education, and experience as a meteorologist. The data and information I have reviewed are of the type meteorological experts customarily rely upon when forming opinions regarding meteorological conditions, such as the occurrence of hail hydrometeors, at specific locations and times.

Contents

1. Introduction

This Report details the results of a site-specific forensic investigation of meteorological conditions occurring at and in the immediate vicinity of the Property of interest in regards to Case 2019CV000116. The Property of interest is identified, the scope of the investigation is defined, and the Report's structure is discussed within this introduction.

Property of Interest

Table 1 details the Property of interest. Figure 1 shows the location of the Property of interest.

Table 1: The Property of interest. See Figure 1 for a map of the Property of interest.

ID	Address	County	Coordinates
Property	610 10^{th} Street, Fennimore, WI 53809	Grant	42.983°N 90.649°W

Scope

This forensic meteorological analysis investigates the meteorological conditions at and in the vicinity of the Propertybetween 26 February 2017 and 31 May 2019. Specifically, this analysis investigates the potential for hail hydrometeor activity with diameter greater than or equal to 0.75 inches.

Report Structure

This introductory section discussed the Property location and scope of the forensic meteorological analysis. Section 2 identifies the meteorological data sources utilized in course of this forensic analysis and discusses observational coverage of the meteorological conditions affecting the Property. An overview of the forensic meteorological analysis is available in section 3. The forensic analysis of the meteorological conditions affecting the Property are discussed individually for each period of interest. A summary of the principle findings of the forensic meteorological analysis in the final section.

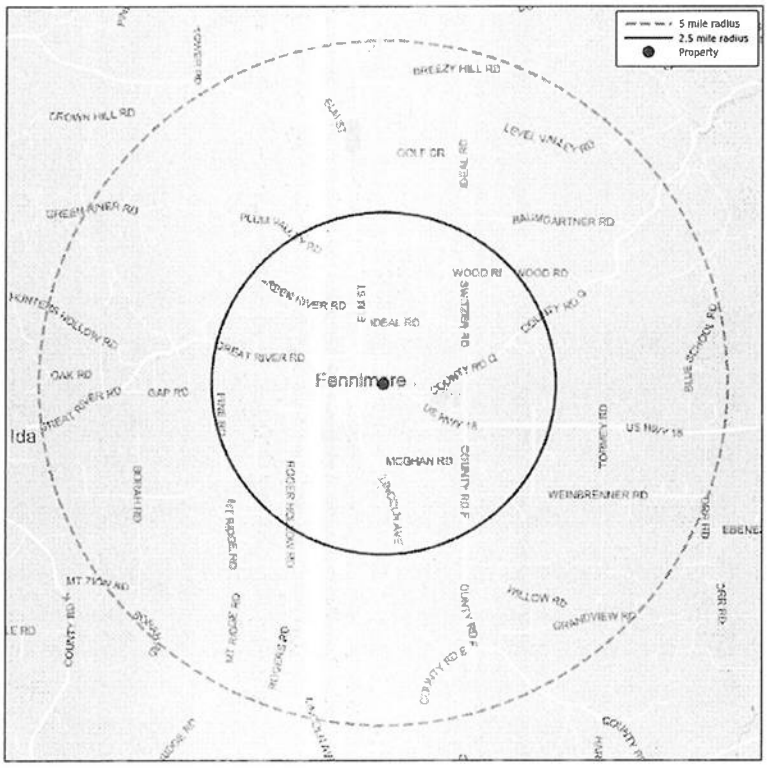


Figure 1: A map of the Property of interest. Please see Table 1 for additional details. Note the red dashed circle indicates a five (5.0) mile radius the Property.

2. Data & Methodology

Meteorological data utilized in this analysis was retrieved from the National Center for Environmental Information. The National Weather Service (NWS) Weather Forecast Office (WFO) responsible for for the geographic area containing the Property is NWS WFO La Crosse, WI (ARX). The observational sources, coverage, and methodology utilized in this investigation are discussed below.

Observational Data Sources

During the course of the forensic meteorological investigation, AtmoSci obtained and reviewed preliminary storm reports archived by the NWS Storm Prediction Center (SPC) and storm reports recorded in the National Centers for Environmental Information (NCEI; formerly the National Climatic Data Center, NCDC) Storm Events Database (SED). Reports from the Community Collaborative Rain, Hail & Snow Network (CoCoRaHS) were reviewed as potential additional sources of hail hydrometeor occurrence reports. The Level III Hail Product data stored in the National Oceanic and Atmospheric Administration's (NOAA) Severe Weather Data Inventory (SWDI) was reviewed in addition to the Level II, and Level III radar data and data products generated by the Next-Generation Radar (NEXRAD) were analyzed.

Local Storm Reports

During meteorological events, such as the occurrence of severe hail hydrometeors, the meteorological conditions observed on the ground will be reported to the responsible NWS Weather Forecast Office (WFO) by official and unofficial weather observers, members of the general public, amateur radio operators, storm spotters, broadcast media, emergency managers, law enforcement, or trained spotters. These reported observations, known as storm reports, provide important information to the NWS during meteorological events and can impact decisions regarding the issuance of NWS Watches, Warnings, and Advisories. While storm reports provide valuable information regarding the observed impact of meteorological conditions at the surface, they are not considered to be sufficient as a sole source of evidence to determine meteorological conditions for a given location. Storm reports made at specific locations in a region may not always be of sufficient quality, quantity or distributed enough spatially to provide sufficient geographic coverage to determine, within a reasonable degree of certainty, hail hydrometeor occurrence at a specific location or the characteristics (e.g., diameter, duration) of a hail hydrometeor occurrence. Furthermore, storm reports may contain inaccuracies such as the reported location may be approximated if the NWS is unable to identify the location provided by the source. The NWS SPC maintains an archive of preliminary storm reports. This investigation reviewed Local Storm Reports located within five (5.0) miles of the Prop-

erty.

CoCoRaHS Observations

The Community Collaborative Rain, Hail & Snow Network (CoCoRaHS), a network of volunteer weather observers, provides reports of hail hydrometeor occurrence. Similar to storm reports, CoCoRaHS hail hydrometeor reports can provide useful information when used in conjunction with official storm reports and weather surveillance radar observations. There were no CoCoRaHS stations located within five (5.0) of the Property.

Storm Events Database

Quality controlled official storm reports are maintained in the NCEI Storm Events Database (SED)[1]. This investigation has reviewed preliminary and official storm reports located within five (5.0) miles of the Property to identify any observations near the ground of hail hydrometeor activity at the Property.

Weather Surveillance Radar

This investigation reviewed weather surveillance radar observations of meteorological conditions affecting the Property. Weather surveillance radar observations are capture using either a Weather Surveillance Radar - 1988 Doppler (WSR-88D) or Terminal Doppler Weather Radar (TDWR). A brief overview of both radar technologies is below and a discussion of the weather surveillance radar coverage for the meteorological environment at and in the immediate vicinity of the Property follows.

Weather Surveillance Radar - 1988 Doppler

The NWS, U.S. Department of Defense, and the Federal Aviation Administration (FAA) operate the Next-Generation Radar (NEXRAD) network, which is composed of Weather Surveillance Radars - 1988 Doppler (WSR-88D) providing continuous meteorological surveillance throughout the United States. Deployment of WSR-88D began in the early 1990s and was completed in 1997, with additional WSR-88Ds added to improve radar coverage as recently as 2011. The WSR-88D has received two major enhancements since the initial installation, including an upgrade to "Super Resolution" in 2008 to enhance the horizontal resolution of reflectivity and velocity values and beginning in 2010 NEXRAD sites were upgraded with polarimetric, "Dual-Polarization", radar capabilities. The upgrade to polarimetric radar was completed in 2013 and resulted in the ability to distinguish backscattered energy from radar targets on both the horizontal and vertical axis, which resulted in several meteorological surveillance improvements including the enhanced ability to differentiate between types of hydrometeors (e.g., rain, snow, hail hydrometeors) and clearly distinguish hydrometeors from non-hydrometeors (e.g., bats, birds, insects).

A NEXRAD WSR-88D site continuously monitors meteorological conditions by emit-

[1]The Storm Events Database (SED) is populated with data from the NWS Storm Data Publication, which is generated following the guidelines specified in NWS Instruction 10-1605.

ting a beam of energy along a radial and capturing the returned energy[2]. The radar repeats this emittance and capture of energy at a fixed elevation angle for an entire 360° scan before increasing the elevation angle and scanning again. The lowest elevation angle is 0.5°, and the highest is 19.5°. During severe weather events, the radar will scan 14 elevation angles to observe the meteorological environment. A complete scan can be completed in approximately 4 to 6 minutes. The raw radar observations are passed through a signal processor to generate the Level II radar products[3]. Meteorologists use weather radar surveillance data both in real-time and for post-event analysis to assess meteorological conditions (e.g., heavy rainfall, hail hydrometeors).

The NWS has developed, tested, and installed computer algorithms to analyze radar data[4]. Level III data products are generated by processing Level II radar data through the Radar Product Generator (RPG) System. The NEXRAD Level III Hail Index is a product designed to locate storms with the potential to produce hail and communicates this information to users through calculation of a probability of the occurrence of hail of any size (POH), probability of occurrence of severe hail (POSH)[5], and a maximum estimated size of hail[6] (MEHS). While the NEXRAD Level III Hail Index has a high probability of detecting severe hail hydrometeors, it also has a high false alarm rate[7] MEHS was developed such that, statistically, approximately 75% of hail hydrometeor storm reports would be for a smaller diameter; thus, MEHS is an upper estimate of hail hydrometeor size. The MEHS algorithm relies upon the knowledge of the altitudes of the 0°C and −20°C levels, and is most effective between approximately 30 miles to 70 miles away from the radar site. The MEHS and probabilities calculated by the hail algorithms should be utilized, as a guide to identify spatial and temporal domains of inclement weather, in conjunction with other observations such as official storm reports and weather surveillance radar data to investigate the potential for and characteristics of hail hydrometeors.

NWS MEHS results are summarized in the NCEI Severe Weather Data Inventory (SWDI) Level III Hail Index. The SWDI Level III Hail Index is not considered to be sufficient evidence of the hail hydrometeor activity at a specific location because it is a product designed to locate storms with the potential to produce hail hydrometeors. Thresholds utilized in the generation of the NEXRAD Level III Hail Index can be specified by the radar operator resulting in an additional source of uncertainty regarding the generated product. Furthermore, the coordinate location (i.e., latitude and longitude) assigned to Hail Index products results from the Storm Cell Identification and Tracking (SCIT) Algorithm calculating a mass weighted centroid point for the high reflectivity regions of

[2]Please see Federal Meteorological Handbook No. 11 Part B - Doppler Radar Theory and Meteorology for additional details.

[3]These products are Reflectivity, Velocity, Phase Shift, Differential Reflectivity, Correlation Coefficient, and Differential Phase.

[4]Please see Federal Meteorological Handbook No. 11 Part C: WSR-88D Products and Algorithms.

[5]Despite the 2010 update of severe criteria from 0.75 inches to 1.00 inch, the POSH continues to calculate for a 0.75 inches severe hail criteria. The NWS Radar Operations Center (ROC) associates a POSH of 70% with a 50% chance for the occurrence of hail hydrometeors with diameter of 1.00 inch.

[6]Reported in increments of 0.25 inches.

[7]Indicating hail hydrometeors when there are none.

individual storm cells. The NEXRAD Hail Index products are subject to spatial inaccuracies[8] and should only be used to help identify areas of significant weather for further analysis. Therefore, the SWDI Level III Hail Index must be used in conjunction with official storm reports and the actual radar observations in order to complete a site-specific investigation of hail hydrometeor activity.

Weather Surveillance Radar Coverage

Table 2 lists the weather surveillance radars providing observational coverage and utilized in this forensic meteorological analysis. Radar observations were primarily utilized from KARX. Observations from KDVN were utilized in conjunction with KARX to further assess meteorological conditions as necessary. Figure 2 shows the location of the weather surveillance radar sites relative to the Property. In the course of reviewing weather surveillance radar observations, radiosonde observations from KDVN were reviewed to identify the altitude of the 0°C and -20°C levels.

Table 2: Weather surveillance radar sites utilized in the course of this forensic meteorological analysis, see Figure 2 for a map of these weather surveillance radars relative to the Property. Please note beam top and bottom are the approximated altitude above radar level calculated using the NWS Warning Decision Training Division (WDTD) Beamwidth Calculator. Note 'ARL' indicates above radar level.

Site	Description	Dist. & Dir.	0.5° Beam Center	0.5° Beamwidth
KARX	LA CROSSE (WSR-88D)	64.09 miles NNW	5,240 ft ARL	5,520 ft
KDVN	DAVENPORT (WSR-88D)	94.81 miles S	9,220 ft ARL	8,090 ft

Methodology

Identification of potential hail hydrometeor events for forensic meteorological investigation began by reviewing the NWS SPC Local Storm Reports (LSR) archive, NOAA NCEI Storm Events Database, CoCoRaHS reports, and the NEXRAD Level III Hail Index product for potential events occurring in the vicinity of the Property. This investigation takes into consideration the recommendations for analysis and assessment of potential hail hydrometeors presented in Federal Meteorological Handbook No. 11 - Part D: WSR-88D Unit Description and Operational Applications. Upon identification of a potential event, the NEXRAD Level II data was retrieved and reviewed from WSR-88D sites within 100 miles[9]. Additionally, Level III data was retrieved and reviewed from NEXRAD sites within 100 miles. Review and analysis of radar observations utilized Composite Reflectivity (CR) and Base Reflectivity (BR) for the lowest (e.g., 0.5°, 0.9°, and 1.5°) elevation angles in order to identify the regions of maximum reflectivity and storm features occurring both near the surface and at the base of the storm. Solely using the 0.5° elevation angle may result in misinterpretation of conditions when observing a location in close proximity of a radar due to the potential for beam blockage and presence for clutter. Additionally, analysis of the storm structure utilized cross-sections and 3-D volume visualization to

[8] See `https://www.ncdc.noaa.gov/swdi/#Intro`.

[9] A 100-mile threshold was used to eliminate weather surveillance radars to account for decreased observational coverage due to broadening of the radar beam and limited elevations angles sampling at long distances.

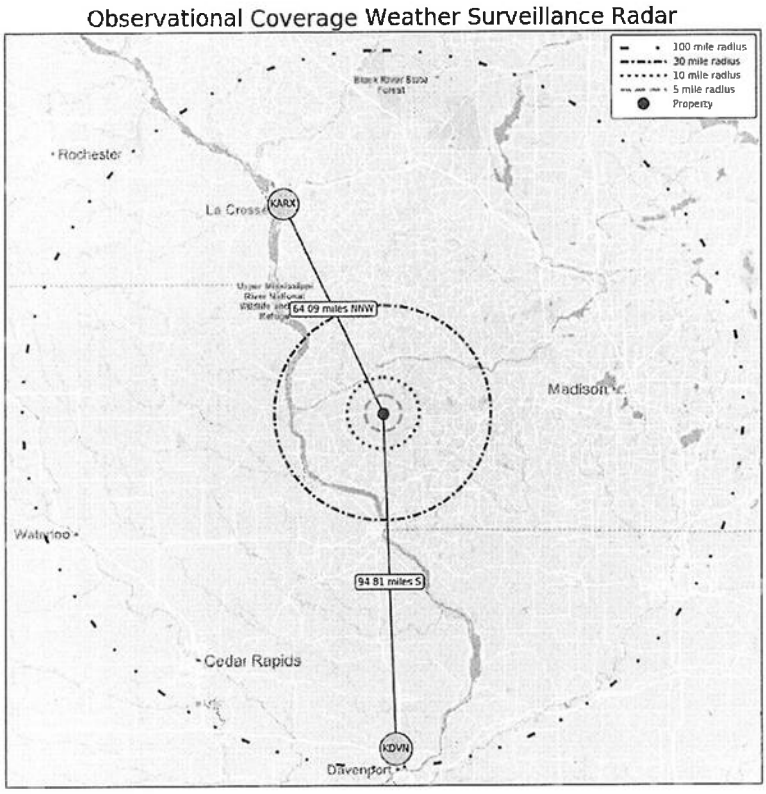


Figure 2: A map of the weather surveillance radars located within 100 miles of the Property. Please see Table 2 for additional details.

further analysis of storm features.

When available for a potential event, dual-polarization variables were reviewed to enhance understanding of the hydrometeor characteristics being observed. The NEXRAD Level III Differential Reflectivity (ZDR) product was utilized to investigate hydrometeor shape. The NEXRAD Level III Correlation Coefficient (CC) product was used to investigate the uniformity of hydrometeors within the maximum reflectivity region. The effects of Mie[10] Scattering were considered during analysis of Differential Reflectivity (ZDR) and Correlation Coefficient (CC) when investigating potential hail hydrometeor events with 2.00-inch diameters or greater. The NEXRAD Level III Specific Differential Phase (KDP) product was reviewed to investigate regions of hail hydrometeors and assess if there were any indications of water-coated or melting hail.

Upon identification of a potential hail hydrometeor event at or in the immediate vicinity of the Property, analysis of storm reports from the SPC's LSR archive and NOAA NCEI Storm Event Database (SED) were reviewed to understand the evolution and impact of the event between the radar observations and the surface. Additionally, results from the NEXRAD Level III Hail Index product and estimates of hail hydrometeor characteristics calculated using the Gibson Ridge 2 Analyst Edition (GR2AE) were reviewed in an effort to assess the diameter of hail hydrometeors occurring at or in the immediate vicinity of the Property.

[10] The forward scattering of the radar beam due to the hydrometeor being larger than the radar beam wavelength.

3. Overview of Analysis

This analysis reviewed meteorological records for surface reports of hail hydrometeors with diameter greater than or equal to 0.75 inches and instances of potential hail hydrometeor activity indicated by weather surveillance radar within five (5) miles of the Property between 26 February 2017 and 31 May 2019. A total of twelve (12) events were identified to have the potential for 0.75 inch diameter hail hydrometeors in the course of this review, see Table 3. Meteorological conditions at and in the immediate vicinity of the Property were evaluated to determine if hail hydrometeors with diameter greater than or equal to 0.75 inches affected the Property. Discussion of specific instances focuses on periods of interest (e.g., claimed date of loss) and occurrences of hail hydrometeors with diameter greater than or equal to 0.75 inches.

Table 3: A summary of the temporal periods identified with the potential hail hydrometeor activity within five (5.0) miles of the Property. Please note "Radar Indicated" and "Surface Report" identify if a radar located within 100-miles of the Property indicated the potential for or the presence of a surface report of the occurrence of hail hydrometeors with diameter greater than or equal to 0.75 inches within five (5.0) miles of the Property.

ID	Start	Stop	Radar Indicated	SED Record
1	23 Mar. 2017 5:25 PM (CDT)	23 Mar. 2017 5:37 PM (CDT)	Yes	Yes
2	15 May. 2017 8:07 PM (CDT)	15 May. 2017 8:13 PM (CDT)	Yes	-
3	17 May. 2017 4:58 PM (CDT)	17 May. 2017 5:00 PM (CDT)	Yes	-
4	28 Jun. 2017 5:40 PM (CDT)	28 Jun. 2017 5:52 PM (CDT)	Yes	-
5	2 Jul. 2017 5:54 PM (CDT)	2 Jul. 2017 5:58 PM (CDT)	Yes	-
6	12 Jul. 2017 2:47 AM (CDT)	12 Jul. 2017 3:59 AM (CDT)	Yes	-
7	27 Aug. 2017 4:18 PM (CDT)	27 Aug. 2017 4:49 PM (CDT)	Yes	Yes
8	2 Sep. 2017 8:43 PM (CDT)	2 Sep. 2017 8:43 PM (CDT)	Yes	-
9	2 May. 2018 6:21 PM (CDT)	2 May. 2018 6:25 PM (CDT)	Yes	Yes
10	1 Aug. 2018 10:05 PM (CDT)	1 Aug. 2018 10:12 PM (CDT)	Yes	-
11	17 Apr. 2019 7:10 PM (CDT)	17 Apr. 2019 7:17 PM (CDT)	Yes	-
12	16 May. 2019 8:54 AM (CDT)	16 May. 2019 10:05 AM (CDT)	Yes	-

4. 23 March 2017

Review of observations from ground reports and weather surveillance radar products identified the potential for hail hydrometeor occurrence within five (5.0) miles of the Property on 23 March 2017. Thunderstorms with the potential to produce hail hydrometeors with diameter greater than or equal to 0.75 inches were in the vicinity of the Properties at between 12:31 PM (CDT) to 12:40 PM (CDT) and 5:11 PM (CDT) to 5:37 PM (CDT).

Period Analysis

Weather Surveillance Radar Observations

KARX and KDVNL observed the storm to move generally from the west-souhtwest towards the east-northeast over the Property between 5:11 PM (CDT) and 5:37 PM (CDT) on 23 March 2017. Cells F2 were identified passing in the vicinity of the Property. Review of NEXRAD Level III Hail Index values identified cell F2 to have the potential hail hydrometeors with maximum estimated hail size (MEHS) 2.75 inches, which was associated with a 100% probability of hail (POH) and 100% probability of severe hail (POSH). Please see Table 4 for additional KARX NEXRAD Level III values. The 0°C and -20°C specified for KARX at the start of this period of interest were approximately 11,700 feet and 21,100 feet respectively.

Table 4: NEXRAD Level III Hail Index Maximum Estimated Hail Size (MEHS), Probability of Hail (POH) of any size, and Probability of Severe Hail (POSH) for cell ID F2 between 5:11 PM (CDT) and 5:37 PM (CDT) from KARX and KDVNL. Please note POSH values are for the probability of hail hydrometeors with diameter equal to 0.75 inches.

ICAO - Cell	Time	MEHS (inches)	POH	POSH	Dist. & Dir.
KARX - F2	5:25 PM (CDT)	1.75	100 %	90 %	4.69 miles SSW
KDVN - F1	5:27 PM (CDT)	1.50	100 %	60 %	3.79 miles S
KARX - F2	5:32 PM (CDT)	2.75	100 %	100 %	2.74 miles SE
KDVN - F1	5:32 PM (CDT)	2.00	100 %	70 %	3.17 miles SE

Figures 3 through 5 show the NEXRAD Level III Composite Reflectivity product and the NEXRAD Level II Base Reflectivity observations on the ~0.48° and ~0.88° elevation angles from KARX for the period between 5:11 PM (CDT) and 5:37 PM (CDT). Appendix E contains the dual-polarized weather surveillance radar imagery from KARX for the period of interest. Investigation of the meteorological conditions passing over or

in the immediate vicinity of the Property and observed by KARX identified the following:

- A maximum Composite Reflectivity value of 65.0 dBZ.
- Maximum Reflectivity values of up to:
  - 64.5 dBZ on the Level II ~0.48° elevation angle.
  - 63.5 dBZ on the Level II ~0.88° elevation angle.
  - 66.5 dBZ on the Level III 0.50° elevation angle.
  - 65.5 dBZ on the Level III 0.90° elevation angle.
- Differential Reflectivity values ranging between:
  - 0.19 dB and -0.50 dB on the Level III 0.50° elevation angle.
  - 0.25 dB and -0.75 dB on the Level III 0.90° elevation angle.
- Correlation Coefficient values ranging between:
  - 95.8% and 90.1% on the Level III 0.50° elevation angle.
  - 94.2% and 87.5% on the Level III 0.90° elevation angle.
- Specific Differential Phase values ranging between:
  - 0.45° km^{-1} and -1.60° km^{-1} on the Level III 0.50° elevation angle or no values returned on the Level III 0.50° elevation angle.
  - 0.30° km^{-1} and -1.40° km^{-1} or no values returned on the Level III 0.90° elevation angle.
- Analysis of the vertical structure of the meteorological environment identified a 57.5+ dBZ reflectivity region, with a core 60.0+ dBZ reflectivity region within the freezing layer and extending above the freezing layer. Prior to arrival at and within the immediate vicinity of the Property the 60+ dBZ reflectivity region persisted within and above the freezing layer.

Surface Observations

Table 5 identifies the NOAA Storm Event Database (SED) record associated with this event. Figure 6 shows the report location relative to the Property. The SED Episode Narrative for this events was:

`Thunderstorms developed across southwest Wisconsin during the afternoon`

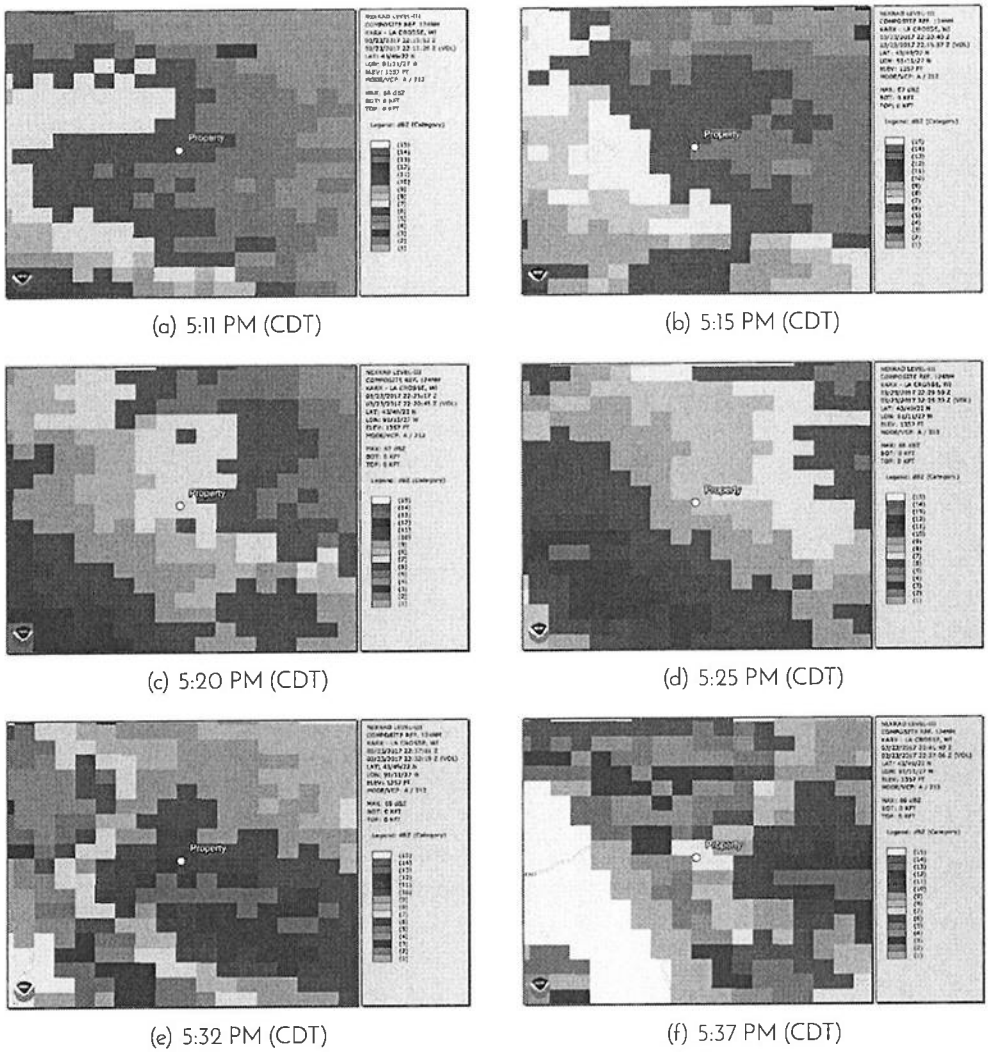
of March 23rd as a warm front approached the region from the south. These storms produced large hail as they moved across the region. The hail mainly fell across Grant County and was as large as quarters in Bagley, Big Patch and near Fennimore.

Table 5: The NOAA Storm Event Database (SED) record of hail hydrometeor activity within five (5) miles of the Property on 23 March 2017.

Time	Source	Magnitude	Details	Dist. & Dir.
5:32 PM (CDT)	Law Enforcement	1.00"	Quarter sized hail fell near Fennimore.	2.16 miles ESE

Period Discussion

KARX weather surveillance radar indicated the potential for hail hydrometeors with diameter greater than or equal to 0.75 inches. A site-specific forensic investigation of meteorological conditions affecting the Property identified meteorological conditions to have been most consistent with hail. The NEXRAD Hail Detection Algorithm (HDA) calculated the maximum estimated hail size (MEHS) associated with the storm to have been up to 2.75 inches. Analysis of weather surveillance radar, specifically the dual polarized variables, indicates the largest hail hydrometeors likely passed south of the Property. Weather surveillance radar observations indicate the Property was on the northern boundary of the 60.0+ dBZ region. Surface observations of hail hydrometeor activity within five (5) miles of the Property estimated diameters up to 1.00 inch. The nearest surface observation to the Property was located approximately 2.16 miles to the east-southeast. Therefore, the Property likely experienced hail hydrometeors with maximum estimated diameter between 0.75 inches and 1.00 inch on 23 March 2017.



(a) 5:11 PM (CDT)

(b) 5:15 PM (CDT)

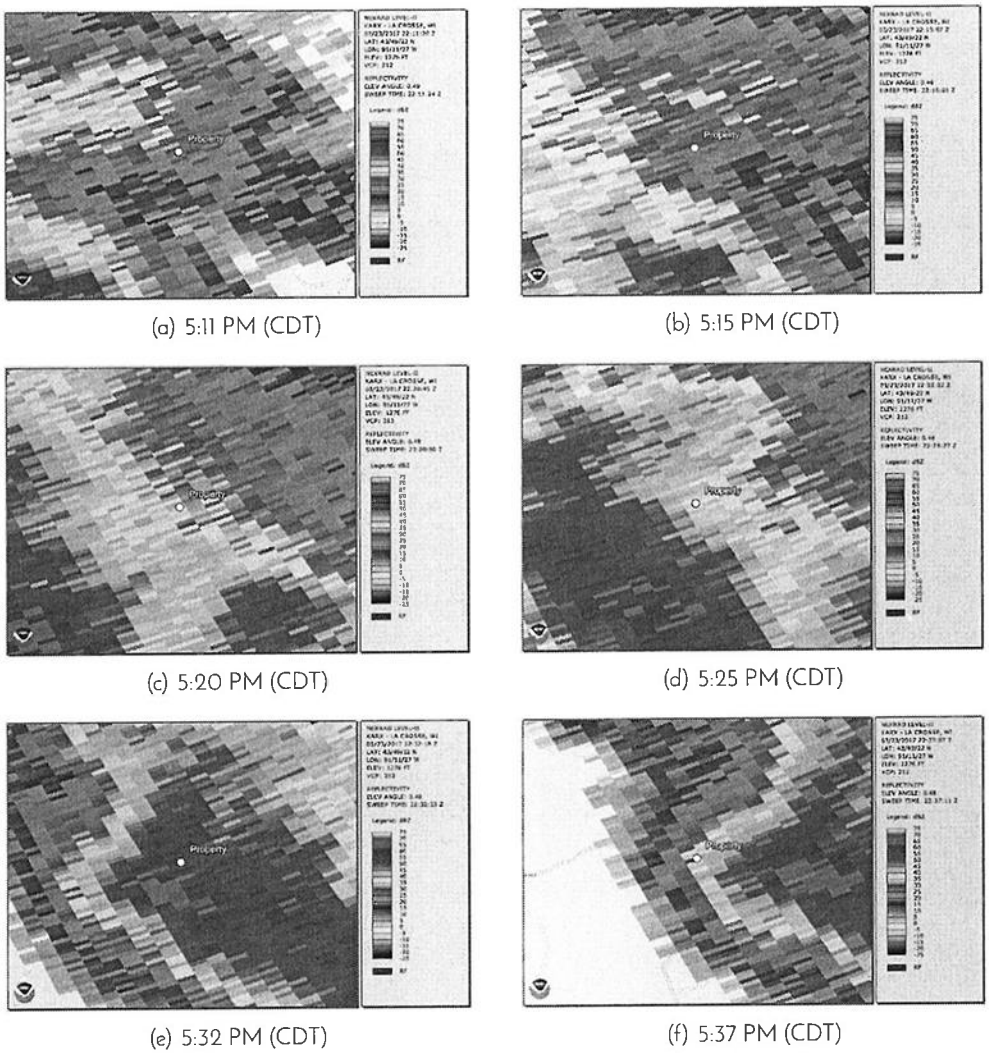
(c) 5:20 PM (CDT)

(d) 5:25 PM (CDT)

(e) 5:32 PM (CDT)

(f) 5:37 PM (CDT)

Figure 3: KARX NEXRAD Level III Composite Reflectivity between 5:11 PM (CDT) and 5:37 PM (CDT) on 23 March 2017. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix E for additional details.



(a) 5:11 PM (CDT)

(b) 5:15 PM (CDT)

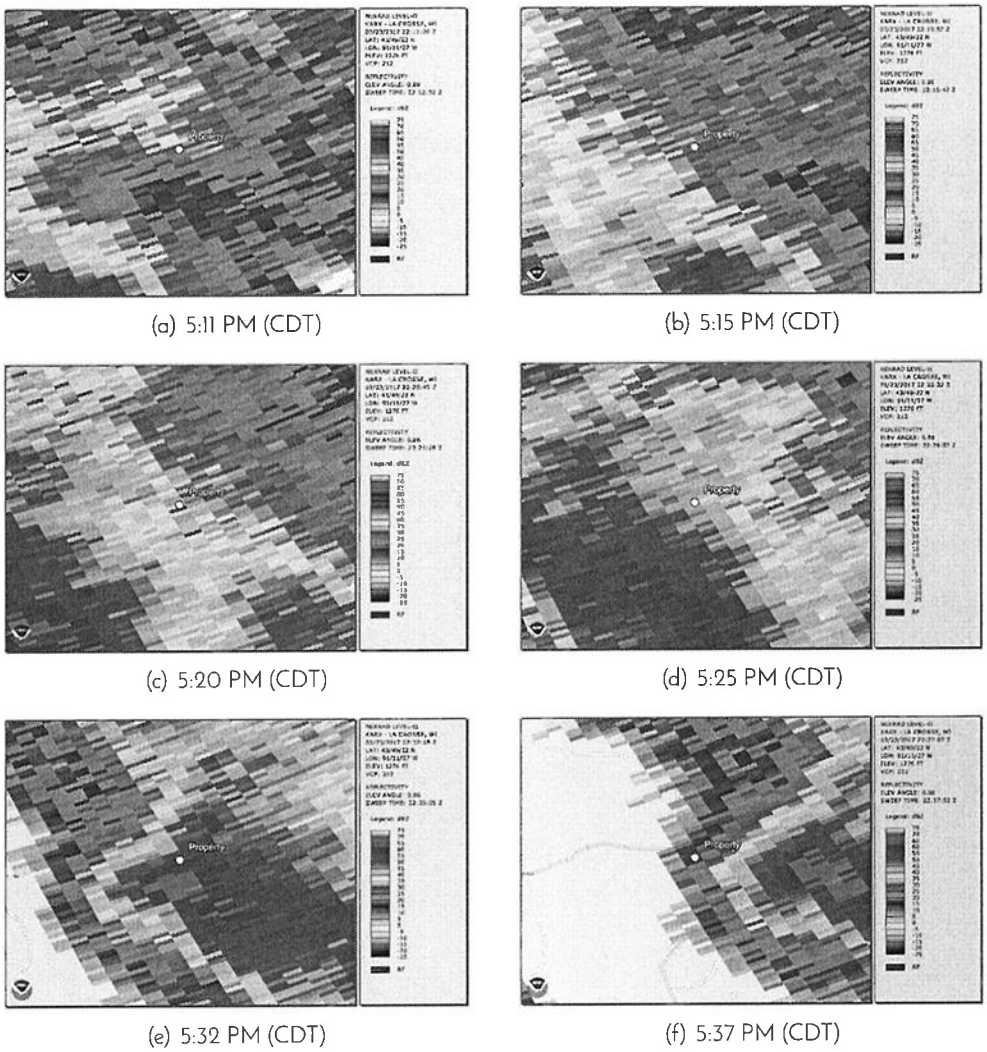
(c) 5:20 PM (CDT)

(d) 5:25 PM (CDT)

(e) 5:32 PM (CDT)

(f) 5:37 PM (CDT)

Figure 4: KARX NEXRAD Level II ~0.48° Base Reflectivity observations between 5:11 PM (CDT) and 5:37 PM (CDT) on 23 March 2017. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix E for additional details.



(a) 5:11 PM (CDT)

(b) 5:15 PM (CDT)

(c) 5:20 PM (CDT)

(d) 5:25 PM (CDT)

(e) 5:32 PM (CDT)

(f) 5:37 PM (CDT)

Figure 5: KARX NEXRAD Level II ~0.88° Base Reflectivity observations between 5:11 PM (CDT) and 5:37 PM (CDT) on 23 March 2017. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix E for additional details.

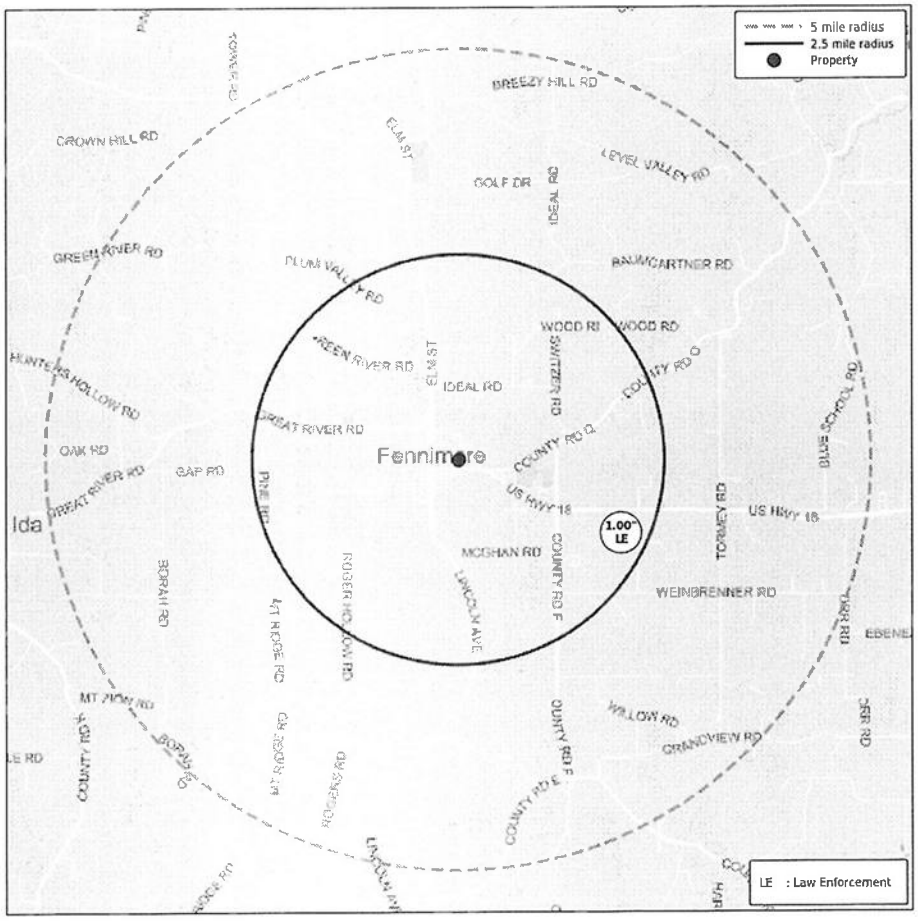


Figure 6: A map of the NCEI Storm Event Database (SED) records for hail hydrometeors within five (5.0) miles of the Property on 23 March 2017. Please see Table 5 for additional details.

5. 27 August 2017

Review of observations from ground reports and weather surveillance radar products identified the potential for hail hydrometeor occurrence within five (5.0) miles of the Property on 27 August 2017. Thunderstorms with the potential to produce hail hydrometeors with diameter greater than or equal to 0.75 inches were in the vicinity of the Properties at between 4:14 PM (CDT) and 4:53 PM (CDT).

Period Analysis

Weather Surveillance Radar Observations

KARX and KDVNL observed the storm to move generally from the west towards the east over the Property between 4:14 PM (CDT) and 4:53 PM (CDT) on 27 August 2017. Cells KARX - Z0 were identified passing in the vicinity of the Property. Review of NEXRAD Level III Hail Index values identified cell KARX - Z0 to have the potential hail hydrometeors with maximum estimated hail size (MEHS) 0.75 inches, which was associated with a 90% probability of hail (POH) and 30% probability of severe hail (POSH). Please see Table 6 for additional KARX NEXRAD Level III values. The 0°C and -20°C specified for KARX at the start of this period of interest were approximately 11,600 feet and 21,900 feet respectively.

Table 6: NEXRAD Level III Hail Index Maximum Estimated Hail Size (MEHS), Probability of Hail (POH) of any size, and Probability of Severe Hail (POSH) for cell ID KARX - Z0 between 4:14 PM (CDT) and 4:53 PM (CDT) from KARX and KDVNL. Please note POSH values are for the probability of hail hydrometeors with diameter equal to 0.75 inches.

ICAO - Cell	Time	MEHS (inches)	POH	POSH	Dist. & Dir.
KARX - Z0	4:18 PM (CDT)	0.75	90 %	30 %	2.68 miles WSW

Figures 7 through 12 show the NEXRAD Level III Composite Reflectivity product and the NEXRAD Level II Base Reflectivity observations on the ~0.49° and ~0.88° elevation angles from KARX for the period between 4:14 PM (CDT) and 4:53 PM (CDT). Appendix F contains the dual-polarized weather surveillance radar imagery from KARX for the period of interest. Investigation of the meteorological conditions passing over or in the immediate vicinity of the Property and observed by KARX identified the following:

- A maximum Composite Reflectivity value of 55.0 dBZ.

- Maximum Reflectivity values of up to:
  - 58.5 dBZ on the Level II ~0.49° elevation angle.
  - 60.0 dBZ on the Level II ~0.88° elevation angle.
  - 58.0 dBZ on the Level III 0.50° elevation angle.
  - 58.0 dBZ on the Level III 0.90° elevation angle.
- Differential Reflectivity values ranging between:
  - 3.50 dB and 2.13 dB on the Level III 0.50° elevation angle.
  - 3.25 dB and 1.31 dB on the Level III 0.90° elevation angle.
- Correlation Coefficient values ranging between:
  - 98.8% and 94.5% on the Level III 0.50° elevation angle.
  - 98.1% and 96.5% on the Level III 0.90° elevation angle.
- Specific Differential Phase values ranging between:
  - 3.30° km^{-1} and 0.75° km^{-1} on the Level III 0.50° elevation angle.
  - 3.15° km^{-1} and 1.15° km^{-1} on the Level III 0.90° elevation angle.
- Analysis of the vertical structure identified a 50.0+ dBZ reflectivity region extending through out the freezing layer and a 55.0+ dBZ reflectivity region present within the lower portion of the freezing layer. KARX observations do not indicate the presence of 60.0+ dBZ region within the freezing layer and associated with meteorological activity affecting the Property. Prior to arrival at and within the immediate vicinity of the Property the 55.0+ dBZ reflectivity region remained primarily below the freezing layer and the 50.0+ dBZ reflectivity region remained primarily in the lower portion of the freezing layer.

Surface Observations

Table 7 identifies the NOAA Storm Event Database (SED) record associated with this event. Figure 13 shows the report location relative to the Property. The SED Episode Narrative for this events was:

`Scattered thunderstorms developed over portions of southwest Wisconsin during the afternoon of August 27th. One of these storms became strong enough to drop some dime sized hail in Fennimore (Grant County).`

Table 7: The NOAA Storm Event Database (SED) record of hail hydrometeor activity within five (5) miles of the Property on 27 August 2017.

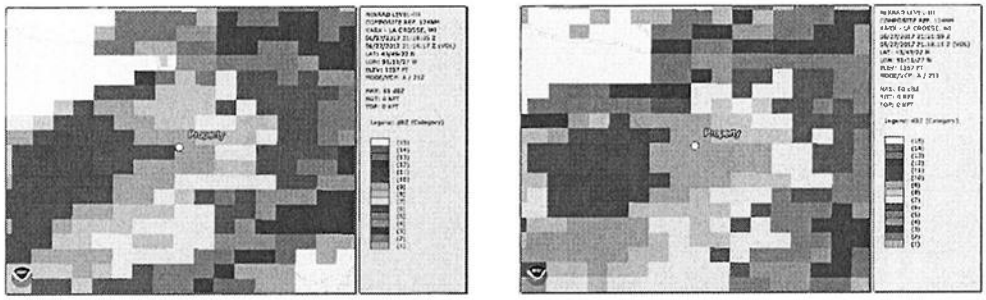
Time	Source	Magnitude	Details	Dist. & Dir.
4:42 PM (CDT)	Broadcast Media	0.75"	-	0.21 miles SSW

Period Discussion

KARX weather surveillance radar indicated the potential for hail hydrometeors with diameter greater than or equal to 0.75 inches. A site-specific forensic investigation of meteorological conditions affecting the Property identified meteorological conditions to have been most consistent with rain. The NEXRAD Hail Detection Algorithm (HDA) calculated the maximum estimated hail size (MEHS) to have been up to 0.75 inches. Surface observations of hail hydrometeor activity within five (5) miles of the Property estimated diameters up to 0.75 inches. The nearest surface observation to the Property was located approximately 0.21 miles to the south-southwest. The Preliminary Local Storm Report associated with the NOAA SED record contained the following:

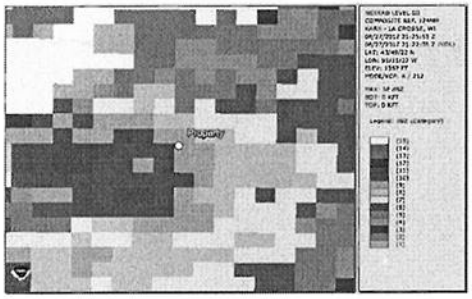
```
DIME SIZE HAIL REPORTED IN THE CITY OF FENNIMORE VIA BROADCAST MEDIA
```

Given the regions of the highest base reflectivity returns on the 0.5° elevation angle, which occur west, southwest, and south of the Property. The meteorological activity identified by the NOAA SED record and associated Preliminary Local Storm Report likely did not affect the Property. The Property likely did not experience hail hydrometeors with diameter greater than or equal to 0.75 inches on 27 August 2017.

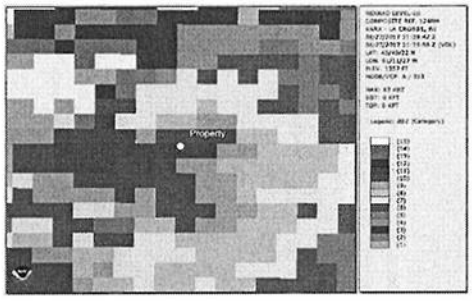


(a) 4:14 PM (CDT)

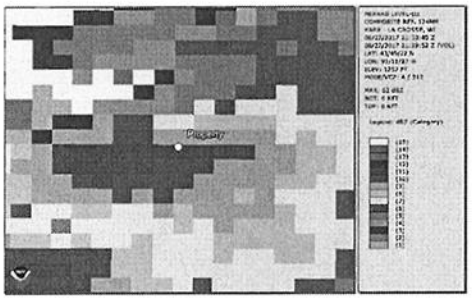
(b) 4:18 PM (CDT)



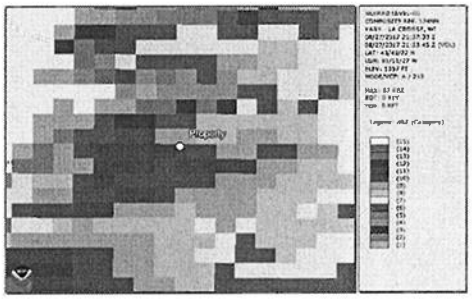
(c) 4:22 PM (CDT)



(d) 4:25 PM (CDT)

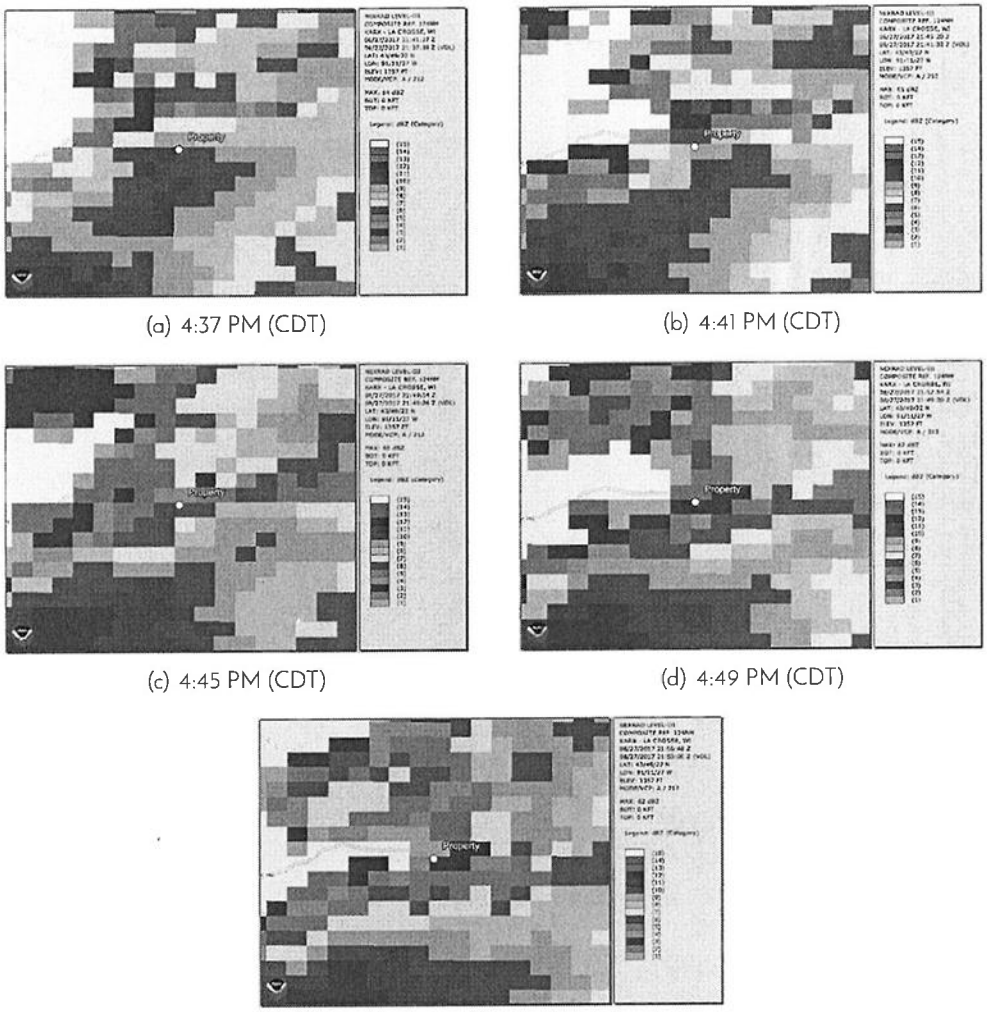


(e) 4:29 PM (CDT)



(f) 4:33 PM (CDT)

Figure 7: KARX NEXRAD Level III Composite Reflectivity on 27 August 2017. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix F for additional details.



(a) 4:37 PM (CDT)

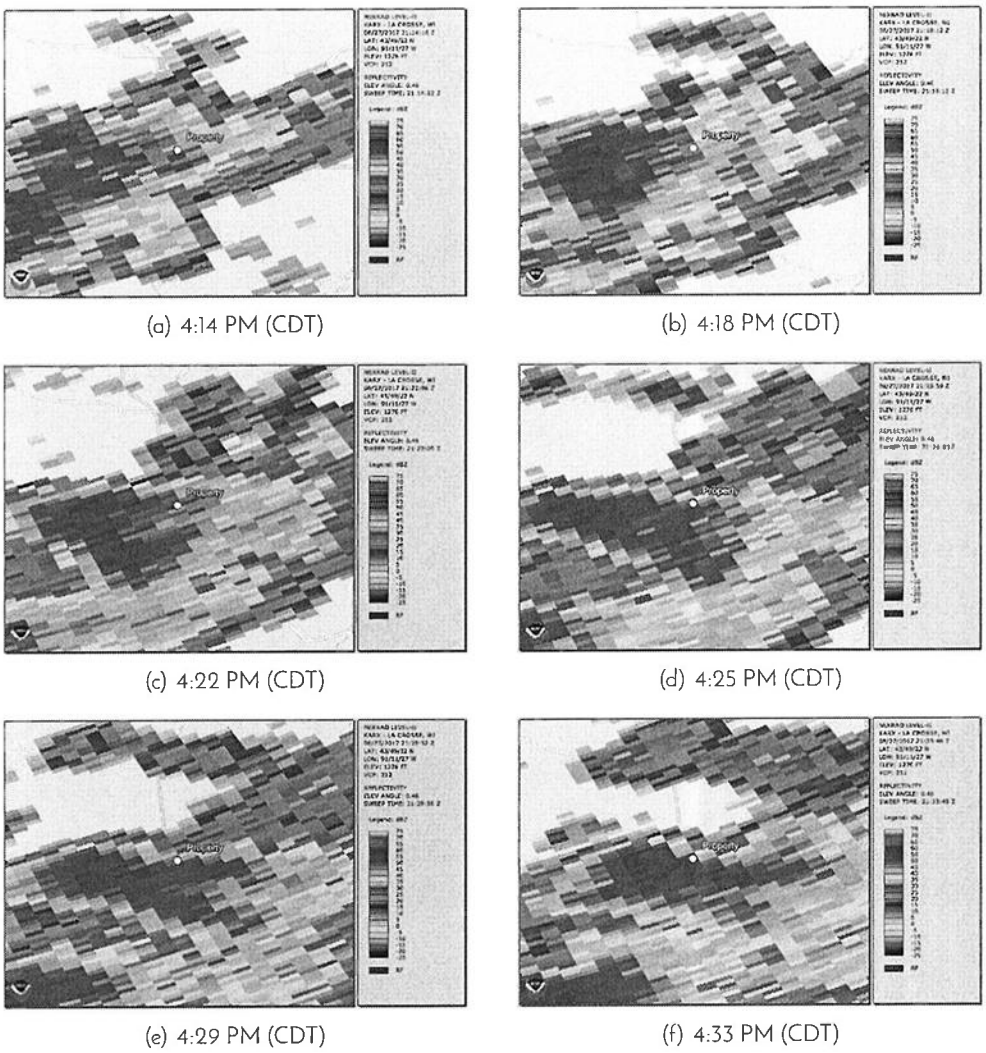
(b) 4:41 PM (CDT)

(c) 4:45 PM (CDT)

(d) 4:49 PM (CDT)

(e) 4:53 PM (CDT)

Figure 8: KARX NEXRAD Level III Composite Reflectivity on 27 August 2017. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix F for additional details.



(a) 4:14 PM (CDT)

(b) 4:18 PM (CDT)

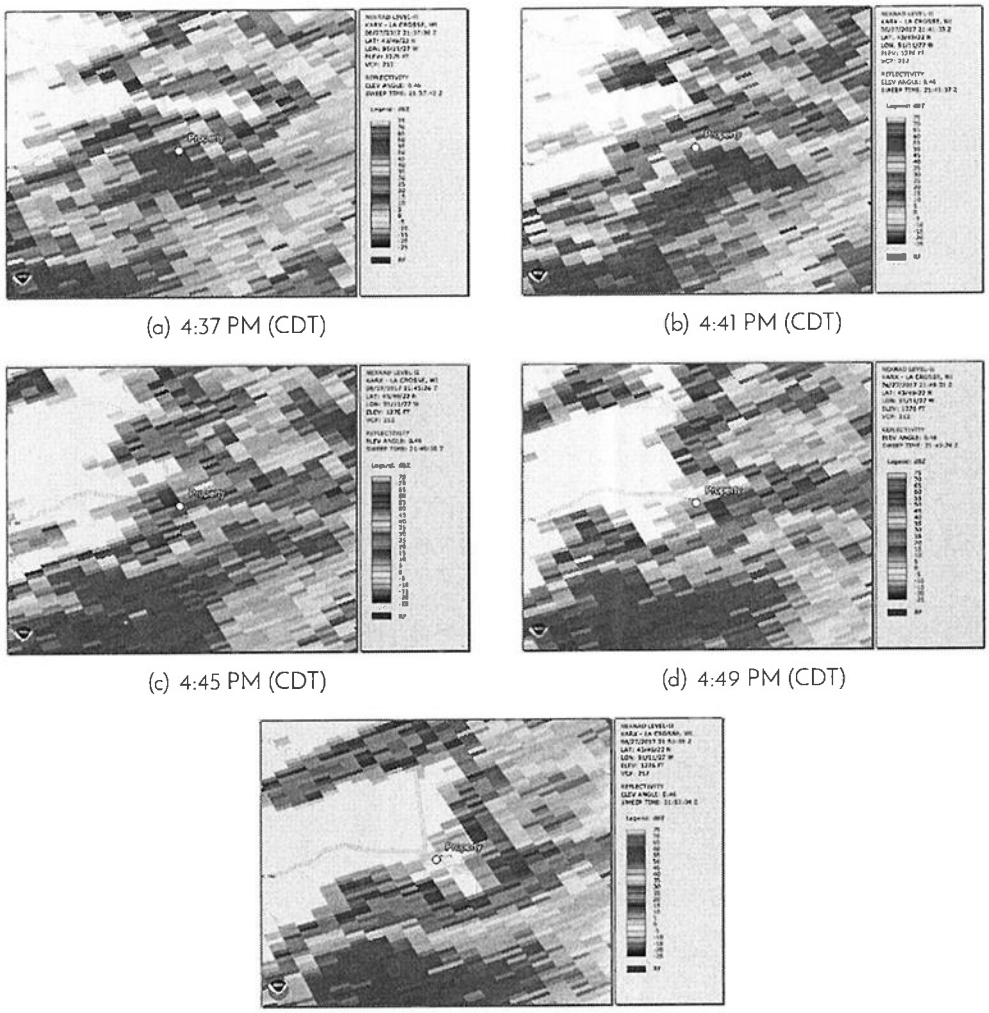
(c) 4:22 PM (CDT)

(d) 4:25 PM (CDT)

(e) 4:29 PM (CDT)

(f) 4:33 PM (CDT)

Figure 9: KARX NEXRAD Level II ~0.49° Base Reflectivity observations on 27 August 2017. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix F for additional details.



(a) 4:37 PM (CDT)

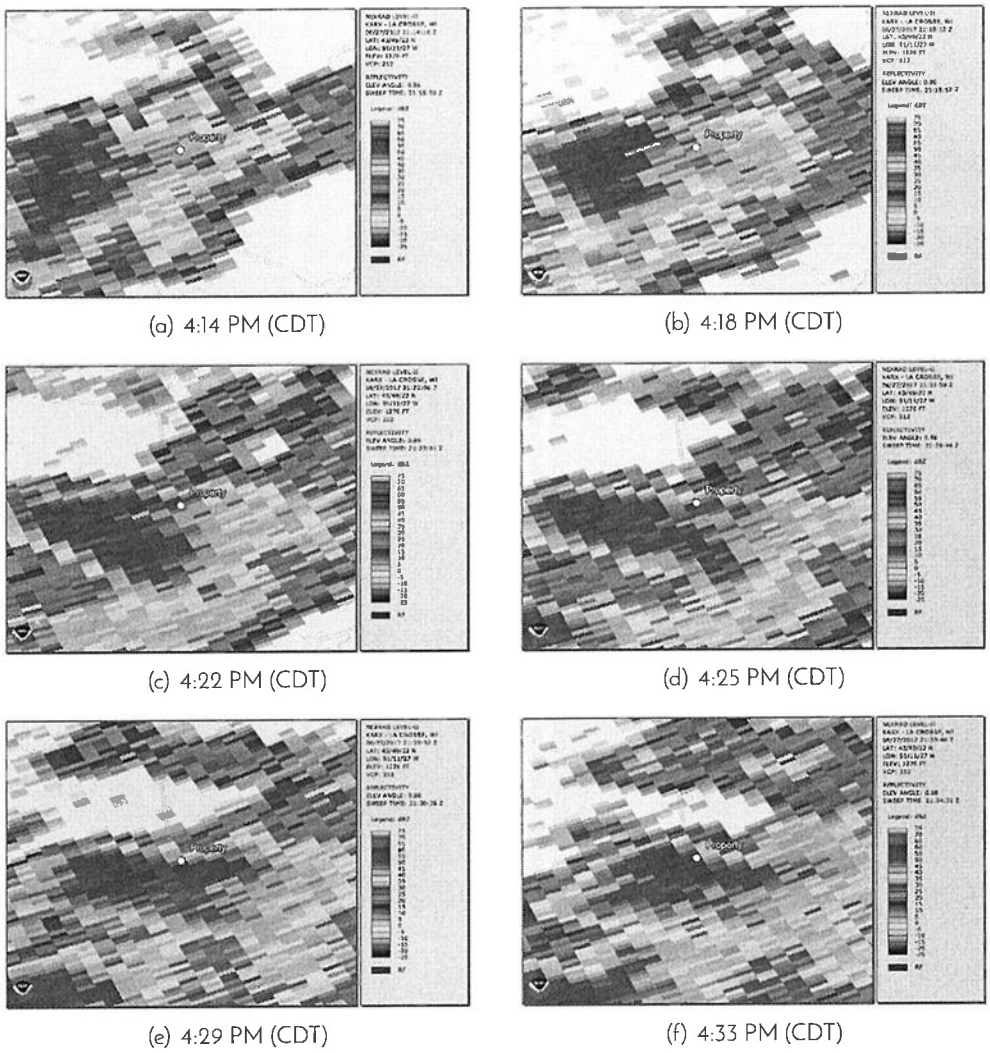
(b) 4:41 PM (CDT)

(c) 4:45 PM (CDT)

(d) 4:49 PM (CDT)

(e) 4:53 PM (CDT)

Figure 10: KARX NEXRAD Level II ~0.49° Base Reflectivity observations on 27 August 2017. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix F for additional details.



(a) 4:14 PM (CDT)

(b) 4:18 PM (CDT)

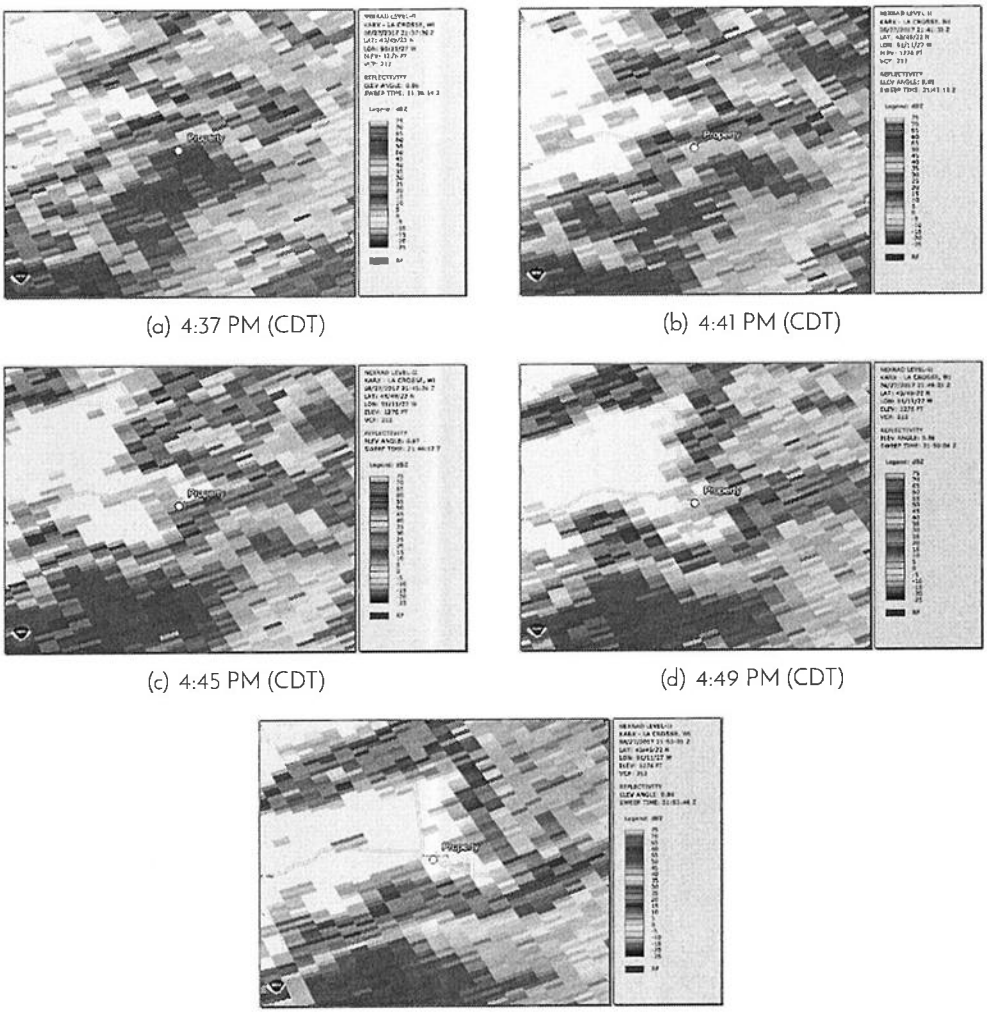
(c) 4:22 PM (CDT)

(d) 4:25 PM (CDT)

(e) 4:29 PM (CDT)

(f) 4:33 PM (CDT)

Figure 11: KARX NEXRAD Level II ~0.88° Base Reflectivity observations on 27 August 2017. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix F for additional details.



(a) 4:37 PM (CDT)

(b) 4:41 PM (CDT)

(c) 4:45 PM (CDT)

(d) 4:49 PM (CDT)

(e) 4:53 PM (CDT)

Figure 12: KARX NEXRAD Level II ~0.88° Base Reflectivity observations on 27 August 2017. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix F for additional details.

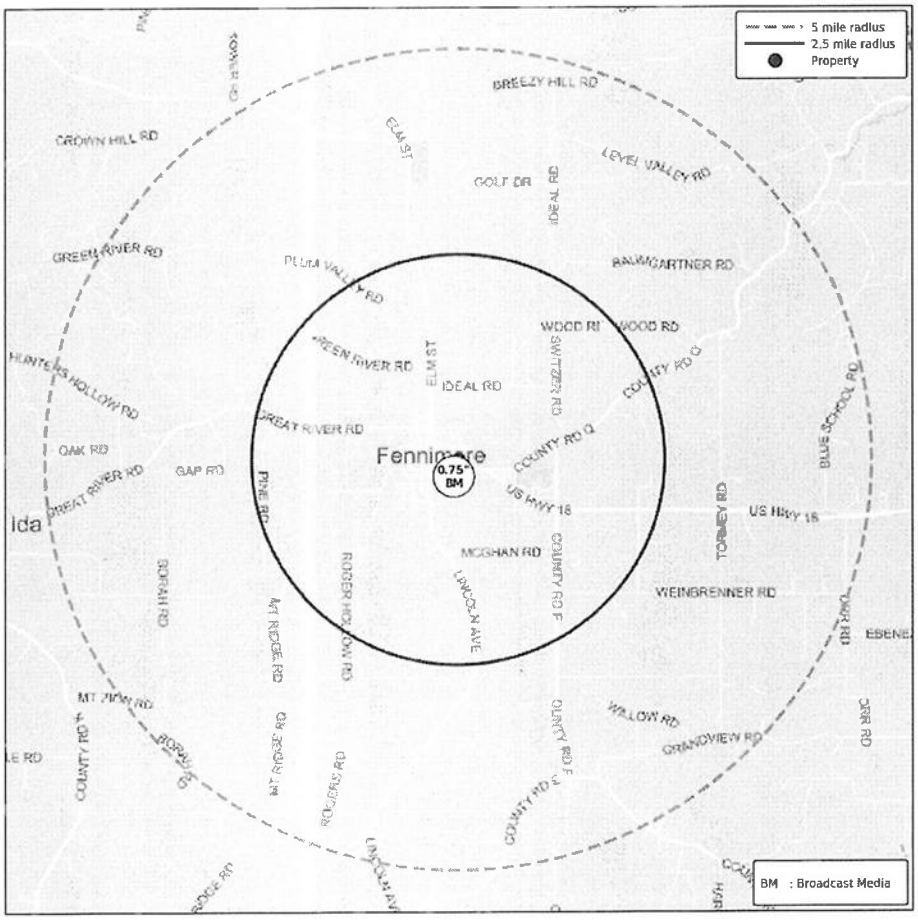


Figure 13: A map of the NCEI Storm Event Database (SED) records for hail hydrometeors within five (5.0) miles of the Property on 27 August 2017. Please see Table 7 for additional details.

6. 2 May 2018

Review of observations from ground reports and weather surveillance radar products identified the potential for hail hydrometeor occurrence within five (5.0) miles of the Property on 2 May 2018. Thunderstorms with the potential to produce hail hydrometeors with diameter greater than or equal to 0.75 inches were in the vicinity of the Properties at between 6:15 PM (CDT) and 6:38 PM (CDT).

Period Analysis

Weather Surveillance Radar Observations

KARX and KDVNL observed the storm to move generally from the west towards the east over the Property between 6:15 PM (CDT) and 6:38 PM (CDT) on 2 May 2018. Cells KARX - S5 were identified passing in the vicinity of the Property. Review of NEXRAD Level III Hail Index values identified cell KARX - S5 to have the potential hail hydrometeors with maximum estimated hail size (MEHS) 0.75 inches, which was associated with a 80% probability of hail (POH) and 40% probability of severe hail (POSH). Please see Table 6 for additional KARX NEXRAD Level III values. The 0°C and -20°C specified for KARX at the start of this period of interest were approximately 11,300 feet and 21,500 feet respectively.

Table 8: NEXRAD Level III Hail Index Maximum Estimated Hail Size (MEHS), Probability of Hail (POH) of any size, and Probability of Severe Hail (POSH) for cell ID KARX - S5 between 6:15 PM (CDT) and 6:38 PM (CDT) from KARX and KDVNL. Please note POSH values are for the probability of hail hydrometeors with diameter equal to 0.75 inches.

ICAO - Cell	Time	MEHS (inches)	POH	POSH	Dist. & Dir.
KDVN - D9	6:21 PM (CDT)	0.75	90 %	0 %	4.80 miles W
KARX - S5	6:25 PM (CDT)	0.75	80 %	40 %	1.72 miles W

Figures 14 through 16 show the NEXRAD Level III Composite Reflectivity product and the NEXRAD Level II Base Reflectivity observations on the ~0.45° and ~0.81° elevation angles from KARX for the period between 6:15 PM (CDT) and 6:38 PM (CDT). Appendix G contains the dual-polarized weather surveillance radar imagery from KARX for the period of interest. Investigation of the meteorological conditions passing over or in the immediate vicinity of the Property and observed by KARX identified the following:

- A maximum Composite Reflectivity value of 55.0 dBZ.

- Maximum Reflectivity values of up to:
  - 62.5 dBZ on the Level II ~0.45° elevation angle.
  - 59.5 dBZ on the Level II ~0.81° elevation angle.
  - 60.0 dBZ on the Level III 0.50° elevation angle.
  - 58.0 dBZ on the Level III 0.90° elevation angle.
- Differential Reflectivity values ranging between:
  - 2.38 dB and 1.94 dB on the Level III 0.50° elevation angle.
  - 2.44 dB and 0.81 dB on the Level III 0.90° elevation angle.
- Correlation Coefficient values ranging between:
  - 98.8% and 97.8% on the Level III 0.50° elevation angle.
  - 97.5% and 87.2% on the Level III 0.90° elevation angle.
- Specific Differential Phase values ranging between:
  - 4.50° km^{-1} and 3.50° km^{-1} on the Level III 0.50° elevation angle.
  - 4.50° km^{-1} and 0.30° km^{-1} on the Level III 0.90° elevation angle.
- Analysis of the vertical structure identifies a 50.0+ dBZ reflectivity region extending above the freezing layer and isolated 55.0+ dBZ reflectivity regions within the freezing layer, including the upper half of the freezing layer. Prior to arrival at and within the immediate vicinity of the Property the 50.0+ dBZ reflectivity region extended throughout and above the freezing layer.

Surface Observations

Table 9 identifies the NOAA Storm Event Database (SED) record associated with this event. Figure 17 shows the report location relative to the Property. The SED Episode Narrative for this events was:

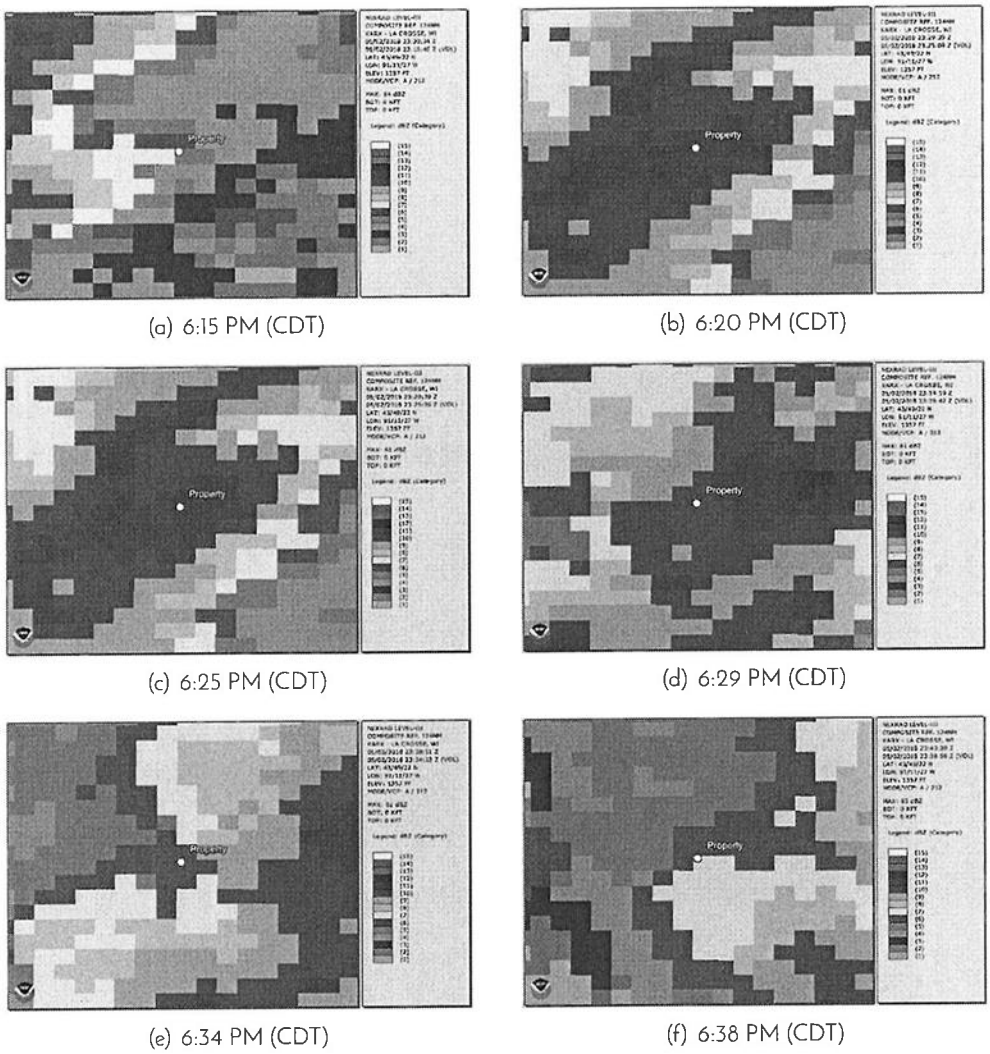
`As a line of thunderstorms moved across southwest Wisconsin during the early evening of May 2nd, some of the storms produced hail. Dime sized hail was reported with these storms in Fennimore (Grant County).`

Table 9: The NOAA Storm Event Database (SED) record of hail hydrometeor activity within five (5) miles of the Property on 2 May 2018.

Time	Source	Magnitude	Details	Dist. & Dir.
6:30 PM (CDT)	Public	0.75"	-	0.74 miles NW

Period Discussion

KARX weather surveillance radar indicated the potential for hail hydrometeors with diameter greater than or equal to 0.75 inches. A site-specific forensic investigation of meteorological conditions affecting the Property identified meteorological conditions to have been most consistent with hail mixed with rain. The NEXRAD Hail Detection Algorithm (HDA) calculated the maximum estimated hail size (MEHS) to have been up to 0.75 inches. Analysis of weather surveillance radar, specifically the dual polarized variables, indicates hail hydrometeors in the meteorological environment as the storm passes over the Property. Surface observations of hail hydrometeor activity within five (5) miles of the Property estimated diameters up to 0.75 inches. The nearest surface observation to the Property was located approximately 0.79 miles to the east-northeast. Neither the Preliminary Local Storm Report nor the NOAA SED Event Narrative explicitly identify the hail hydrometeor diameter to be 'dime-sized', it is unclear what additional reports the Episode Narrative is relying upon. Per NWSI 10-1605, historically 'dime-sized' hail was used to describe hail hydrometeors with diameter less than or equal to 0.75 inches despite a dime being slightly smaller than 0.75 inches. Therefore, the Property likely experienced hail hydrometeors mixed with rain with maximum estimated diameter up to 0.75 inches on 2 May 2018.



(a) 6:15 PM (CDT)

(b) 6:20 PM (CDT)

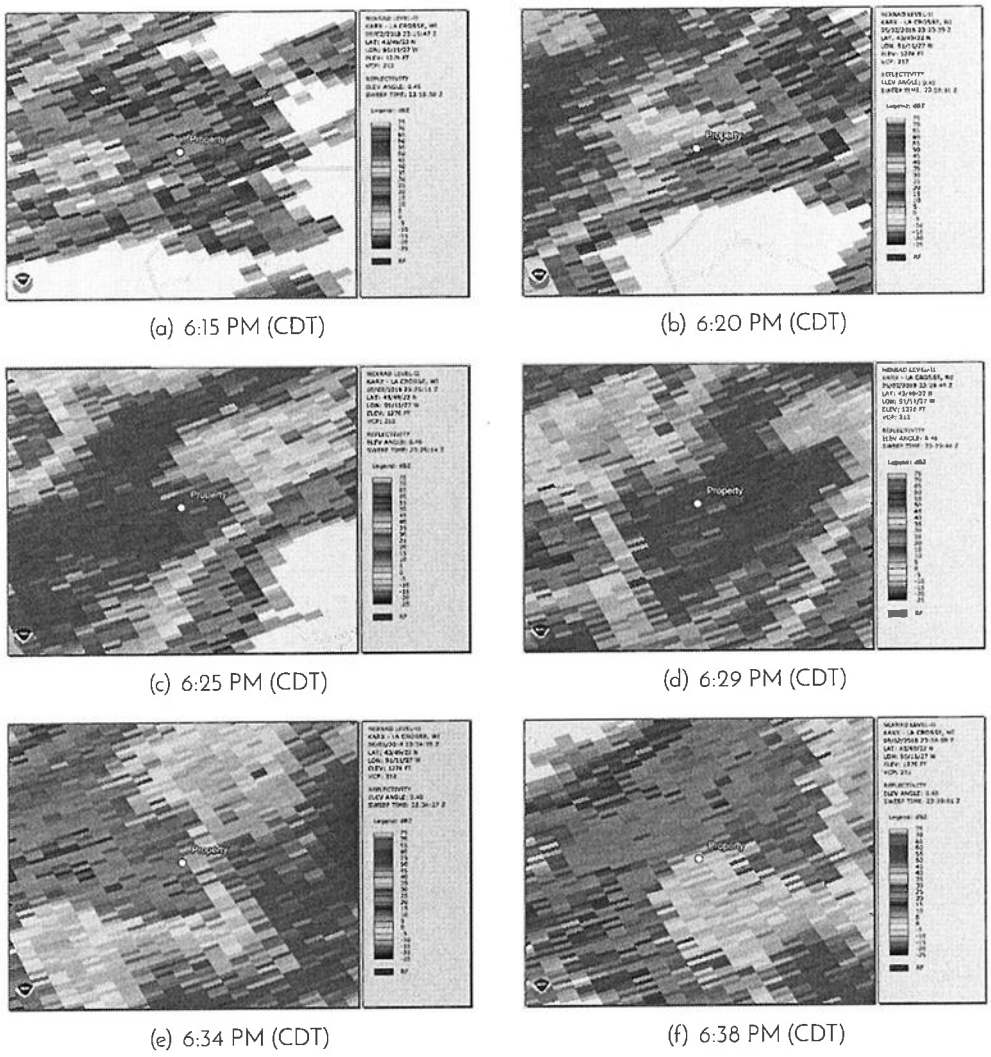
(c) 6:25 PM (CDT)

(d) 6:29 PM (CDT)

(e) 6:34 PM (CDT)

(f) 6:38 PM (CDT)

Figure 14: KARX NEXRAD Level III Composite Reflectivity between 6:15 PM (CDT) and 6:38 PM (CDT) on 2 May 2018. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix G for additional details.



(a) 6:15 PM (CDT)

(b) 6:20 PM (CDT)

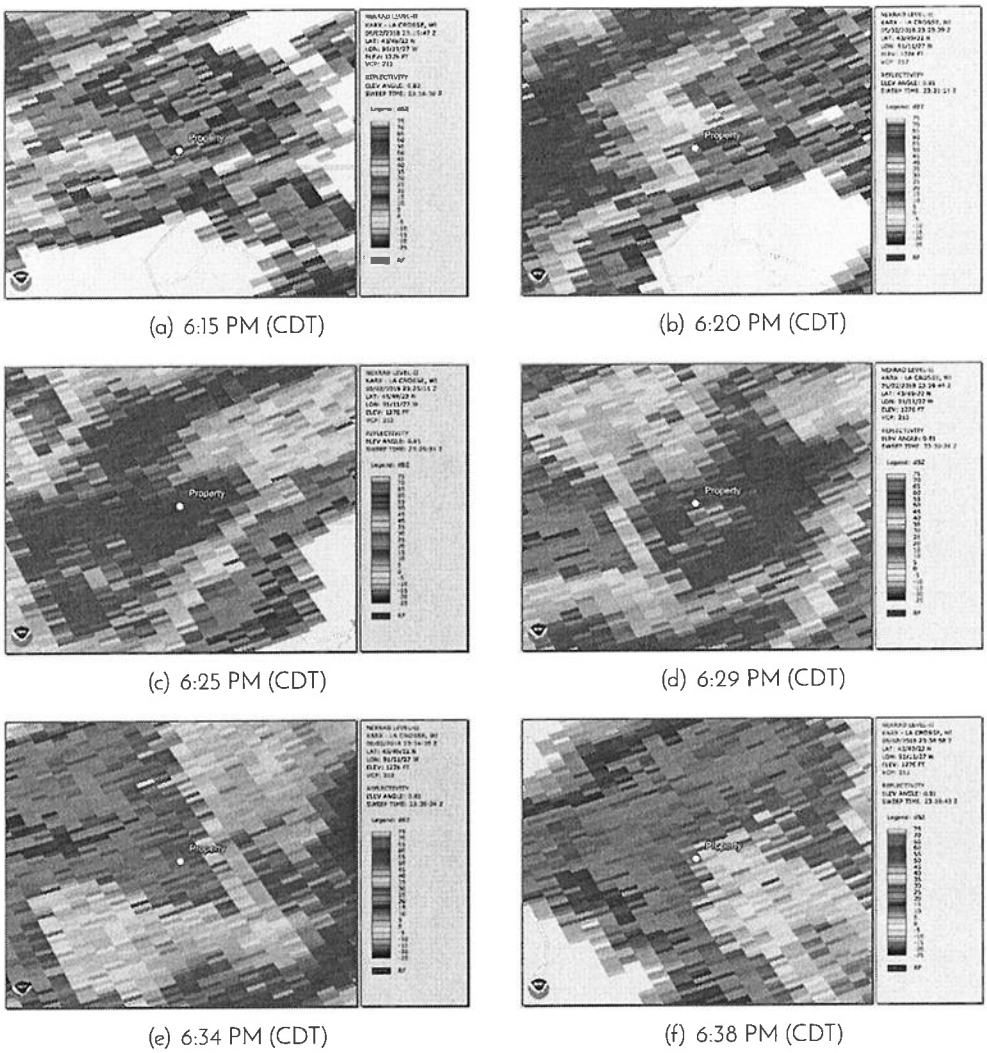
(c) 6:25 PM (CDT)

(d) 6:29 PM (CDT)

(e) 6:34 PM (CDT)

(f) 6:38 PM (CDT)

Figure 15: KARX NEXRAD Level II ~0.45° Base Reflectivity observations between 6:15 PM (CDT) and 6:38 PM (CDT) on 2 May 2018. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix G for additional details.



(a) 6:15 PM (CDT)

(b) 6:20 PM (CDT)

(c) 6:25 PM (CDT)

(d) 6:29 PM (CDT)

(e) 6:34 PM (CDT)

(f) 6:38 PM (CDT)

Figure 16: KARX NEXRAD Level II ~0.81° Base Reflectivity observations between 6:15 PM (CDT) and 6:38 PM (CDT) on 2 May 2018. Please note this image was generated using the NOAA NCEI Weather & Climate Toolkit. The white circle located below and to the left of the label "Property" indicates the Property location. Please see imagery in Appendix G for additional details.

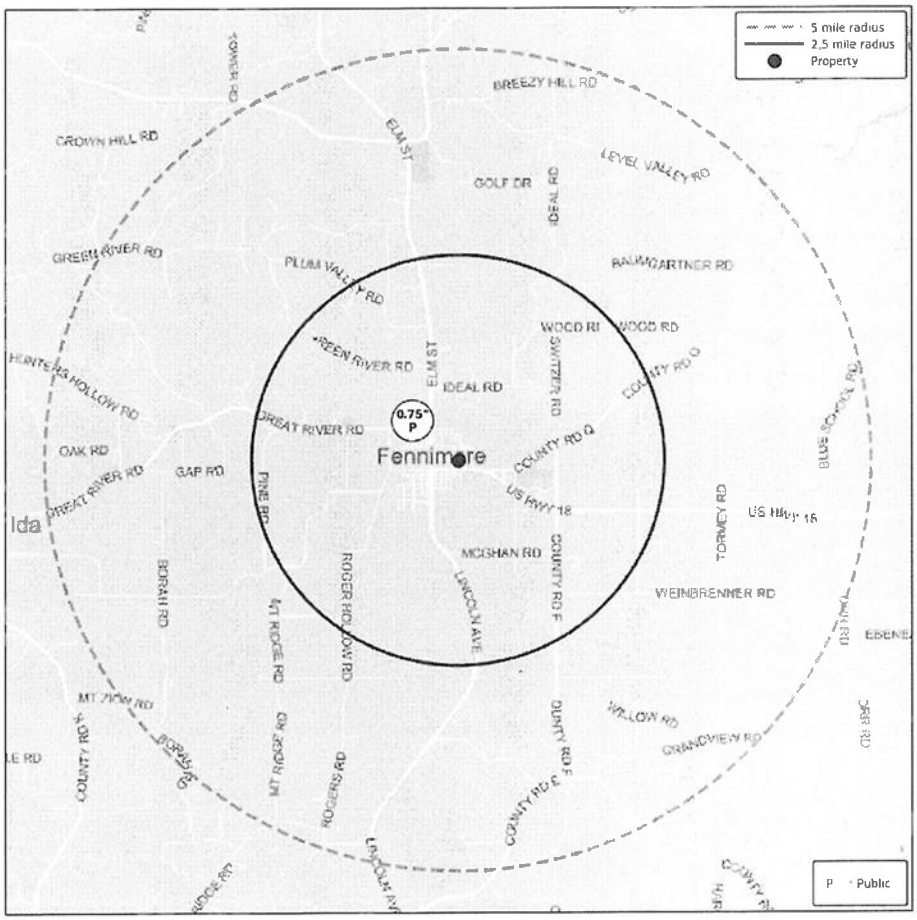


Figure 17: A map of the NCEI Storm Event Database (SED) records for hail hydrometeors within five (5.0) miles of the Property on 2 May 2018. Please see Table 9 for additional details.

7. Summary

Based upon a reasonable degree of meteorological scientific certainty, my opinions are as follows:

- On 23 March 2017, the Property likely experienced hail hydrometeors with maximum estimated diameter between 0.75 inches and 1.00 inch.
- On 27 August 2017, the Property likely did not experienced hail hydrometeors with diameter greater than or equal to 0.75 inches.
- On 2 May 2019, the Property likely experienced hail hydrometeors with diameter up to 0.75 inches.

8. Notice & Supplementation

Please contact me should you have any questions, require additional analysis, or require AtmoSci to obtain certification from the U.S. Department of Commerce for the data utilized in this analysis.

The facts and opinions I have stated are subject to supplementation, should any additional and relevant information become available at a later time, or if I am asked to perform additional analysis.

Jason R. Webster

Jason R. Webster, Ph.D.

15 January 2020

Date

A. Materials Reviewed

Data Sources Reviewed

- NEXRAD Weather Surveillance Radar - 1988 Doppler (WSR-88D) Level II & Level III data from:
  - KARX - NWS La Crosse, WI
  - KDVN - NWS Davenport, IA
- Radiosonde observations from KDVN.
- NCDC Severe Weather Data Inventory
- Community Collaborative Rain, Hail, & Snow (CoCoRaHS) Network Observations
- Preliminary Local Storm Reports from the National Weather Service
- NOAA Storm Event Database (SED) Records

Documents & Other Materials

- "Beer.v.Travelers(1145203.1).pdf"
- NOAA NWS Warning Decision Training Division Radar & Applications Course
- NOAA NWS WSR-88D Dual Polarization Guide
- NOAA NWS WSR-88D Dual-Polarization Radar Decision Aid
- NWS Instructions
  - NWS Instruction 10-1605: Storm Data Preparation
- Office of the Federal Coordinator for Meteorological Services and Supporting Research Federal Meteorological Handbook No. 11 - Doppler Radar Meteorological Observations (WSR-88D)
  - Part A - System Concepts, Responsibilities, and Procedures
  - Part B - Doppler Radar Theory and Meteorology

  - Part C - WSR-88D Products and Algorithms
  - WSR-88D Unit Description and Operational Applications
- NWS WDTD Beamwidth Calculator
- NWS Weather Forecast Office (WFO) La Crosse, WI (ARX) Event Summaries
- NWS Weather Forecast Office (WFO) La Crosse, WI (ARX) Text Products
- Vasquez, 2015. Weather Radar Handbook. 152 pages.

B. Curriculum Vitae

Jason R. Webster, Ph.D.

Education

2014 - Ph.D, Dept. of Meteorology, Univ. of Reading
2008 - B.S. in Atmospheric Science, Magna Cum Laude, Creighton Univ.

Professional Experience

2009 - Present	Owner, AtmoSci, LLC
2012 - 2012	Sessional Lecturer, Univ. of Reading
2008 - 2008	Energy Group Intern, Gavilon
2007 - 2008	Research Assistant, Creighton University

Awards

Second Place Student Poster Competition 25^{th} Conference on Climate Variability and Change at the 93^{rd} American Meteorological Society Annual Meeting.

Affiliations

American Geophysical Union
Loss Executives Association
Royal Meteorological Society
American Meteorological Society
National Weather Association
Western Loss Association

Publications

Webster, J.R., 2013: *Mechanisms and Sources of Predictability in the North Pacific Basin During the 1980s and Early 1990s.* Ph.D. Thesis, University of Reading (U.K.).

Presentations

Webster, J.R. (Aug. 2018), Identifying Climate Opportunities. Keynote Speaker for the DePaul University Arditti Center's Summer Risk Conference in Chicago, IL.

Webster, J.R. (Oct. 2017), Forensic Meteorological Applications: Business Interruption. Continuing Education Course in New York, NY.

C. Schirle and J.R. Webster (Sep. 2017), Harvey & Irma: Coverage & Meteorological Perspectives. Webinar Presentation.

Webster, J.R. (Jun. 2017), Hail: The Scientific Perspective. Loss Executives Association 86^{th} Spring & Education Conference in Newport, RI.

Webster, J.R. (Nov. 2015), Forensic Meteorology. Chicago Claims Association meeting in Lombard, IL.

Webster et al. (Jan. 2013), The Role of the Eruption of El Chichón in the Evolution of the North Pacific During the 1980s. Poster presentation at the 93rd Annual AMS Meeting in Austin, TX.

Webster et al. (Oct. 2011), The North Pacific Warming of the late 1980s. Poster presentation at the World Climate Research Program (WCRP) Open Science Conference in Denver, CO.

Webster et al. (Jun. 2011) Pacific Decadal Predictability. Poster presentation at the Royal Meteorological Society Conference in Exeter, U.K.

Webster, J.R. (Jul. 2010) Indo-Pacific Decadal Climate Variability. Speaker at the Royal Meteorological Society Student Conference in Exeter, U.K.

Webster, J.R. et al. (Jul. 2010) Indo-Pacific Decadal Climate Variability. Poster presentation at the NCAS Atmospheric Science Conference in Manchester, U.K.

Webster, J.R. (Jan. 2008), The European Heat Wave & Drought Event of 2003. Poster presentation at the 88th Annual AMS Meeting in New Orleans, LA.

Other

Drafting committee member for the AMS Policy Statement on Weather, Water, and Climate Priorities (2015 - 2016).

Speaker for the Climate Voices Sciences Speakers Network (2015 - 2018).

Chicago Public Schools Citywide Science Fair Judge (2015 - 2017).

National Weather Service Hazard Simplification Workshop Participant (Oct. 2015).

AMS Summer Policy Colloquium Alumnus (Jun. 2014).

AMS Weather, Water, and Climate Congressional Visit Day Participant (May 2014).

NCAS Climate Modeling Summer School at University of Cambridge (Sep. 2011).

Member of Pi Mu Epsilon, U.S. National Mathematics Honor Society.

C. Remuneration

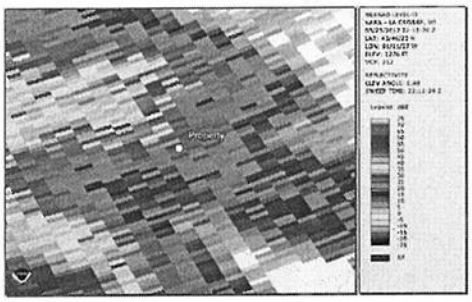
AtmoSci is compensated for its time on an hourly basis and reimbursed for out-of-pocket expenses. My current fee is $200.00 per hour.

D. History of Testimony

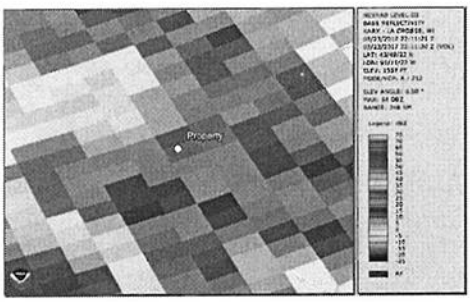
The table below details all deposition and trial testimony by Dr. Webster through 15 January 2020.

Type	Date	Court	Matter
Deposition	11/2/17	U.S. Dist. Court, N. Dist. IL, Eastern Div.	Huntington Chase Condominium Association v Mid-Century Insurance Company Case No.: 1:16-cv-04877
Trial	2/6/18	U.S. Dist. Court, S. Dist. IA, Eastern Div.	Joseph J Henderson & Son, Inc. v Travelers Property Casualty Company of America Case No.: 3:16-cv-00048-JAJ-CFB
Deposition	3/29/18	U.S. Dist. Court, N. Dist. IL, Eastern Div.	Forest Ridge Homeowners Association v Greater New York Mutual Insurance Company Case No.: 1:17-CV-04193
Deposition	8/29/19	19th Judicial Circuit Lake County, Illinois	V.I.P. Holding Company v. National Fire & Marine Insurance Company, Key Insurance Agency, Inc., and Maximum Independent Brokerage, LLC. Case No. 2017 L 1016
Deposition	10/29/19	U.S. Dist. Court, N. Dist. IL, Urbana Div.	Charles Navarro and Tammy Hellings, Individuals and as Beneficiaries to Trust #2422, An Illinois Land Trust Created by Municipal Trust & Savings Bank v Travelers Casualty Insurance Company of America Case No. 2:17-cv-2267

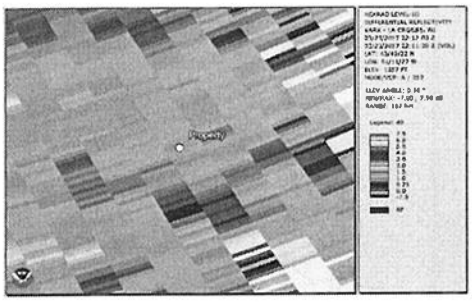
E. KARX Imagery | 23 March 2017



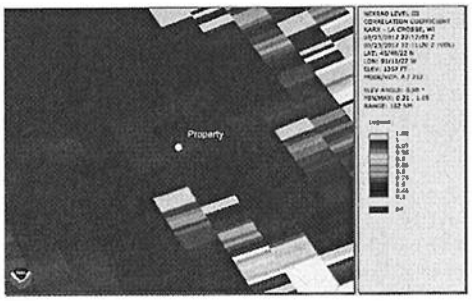
(a) Level II 0.49° Base Reflectivity



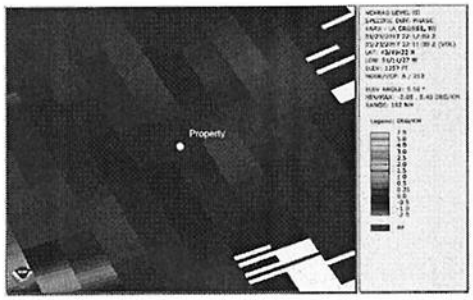
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

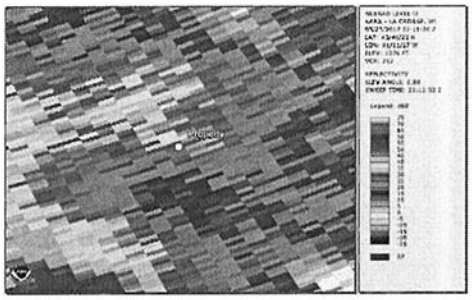


(d) Level III 0.50° Correlation Coefficient

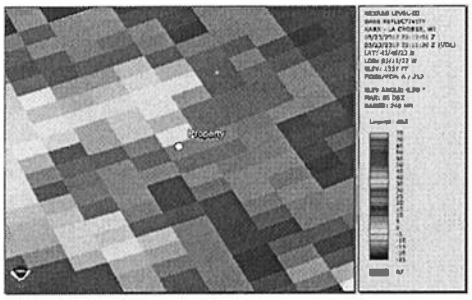


(e) Level III 0.50° Specific Differential Phase

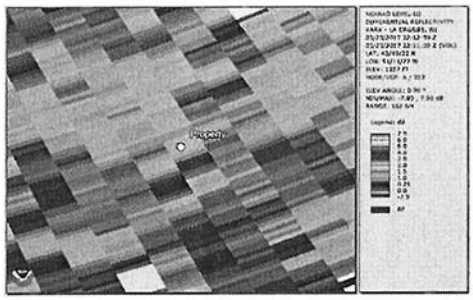
Figure 18: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:11 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



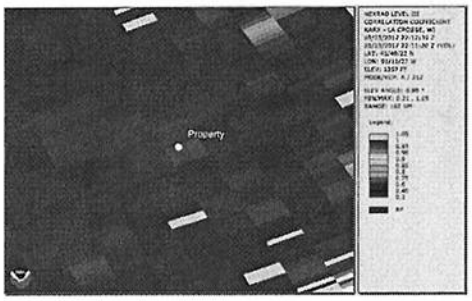
(a) Level II 0.88° Base Reflectivity



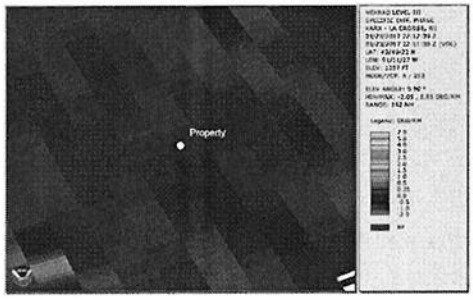
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

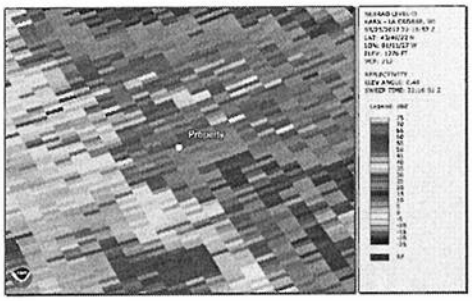


(d) Level III 0.90° Correlation Coefficient

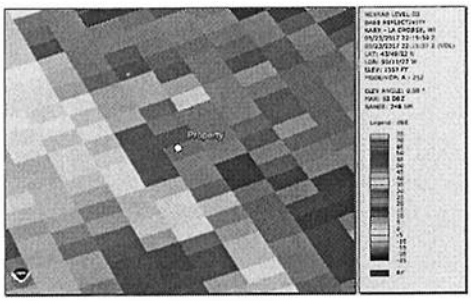


(e) Level III 0.90° Specific Differential Phase

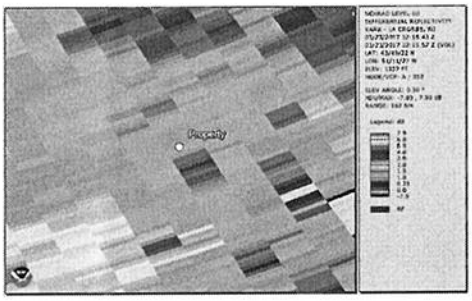
Figure 19: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:11 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



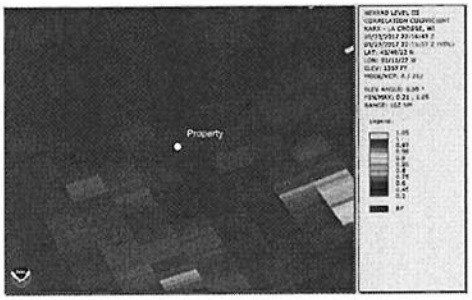
(a) Level II 0.48° Base Reflectivity



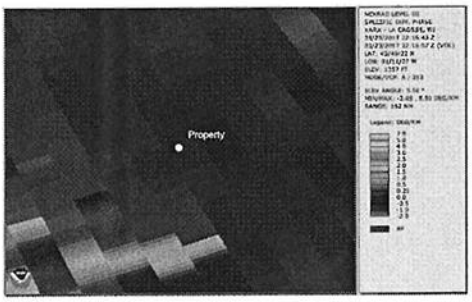
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

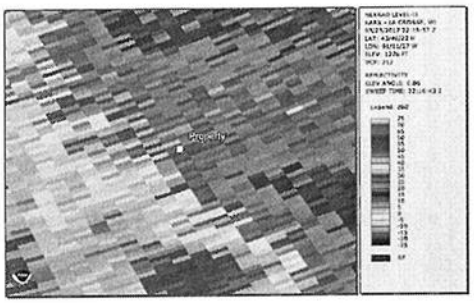


(d) Level III 0.50° Correlation Coefficient

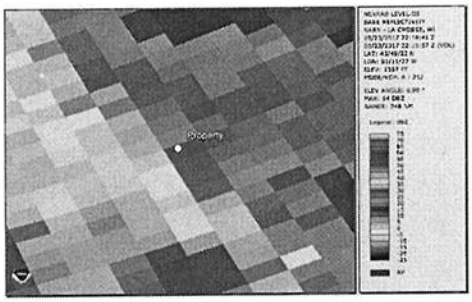


(e) Level III 0.50° Specific Differential Phase

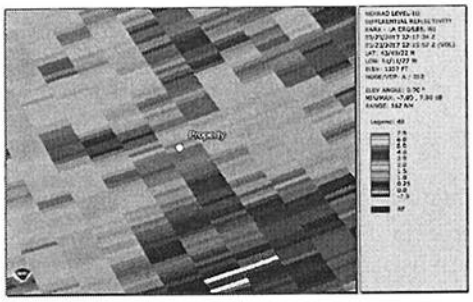
Figure 20: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:15 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



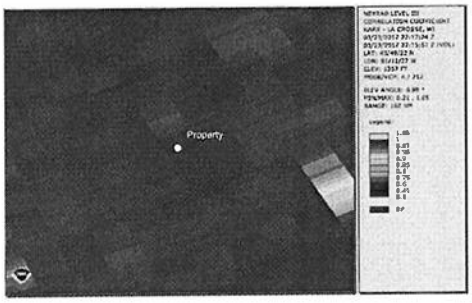
(a) Level II 0.86° Base Reflectivity



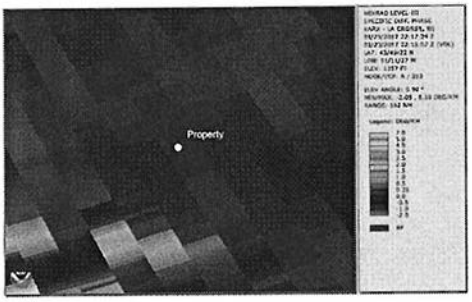
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

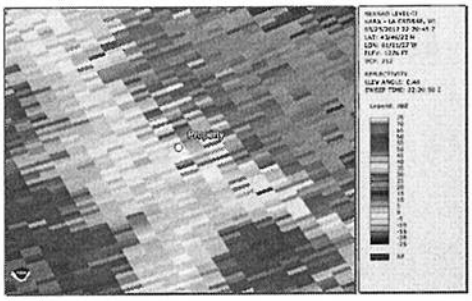


(d) Level III 0.90° Correlation Coefficient

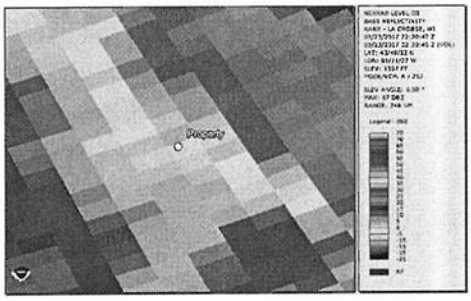


(e) Level III 0.90° Specific Differential Phase

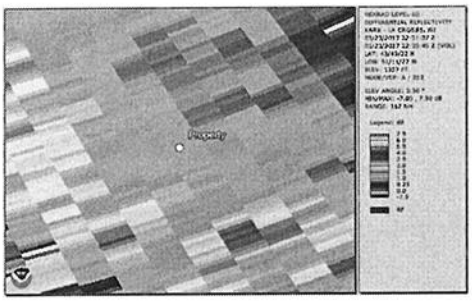
Figure 21: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:15 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



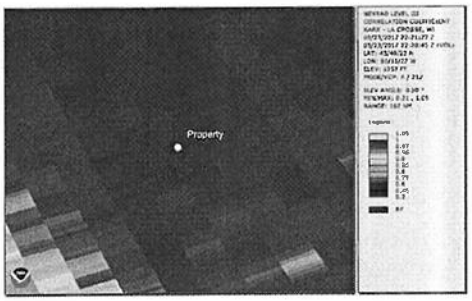
(a) Level II 0.48° Base Reflectivity



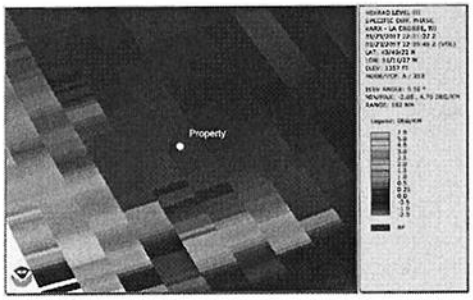
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

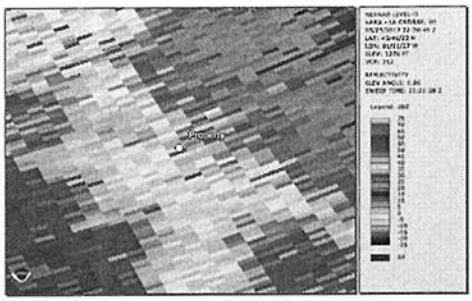


(d) Level III 0.50° Correlation Coefficient

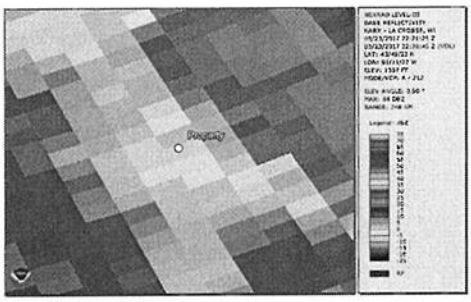


(e) Level III 0.50° Specific Differential Phase

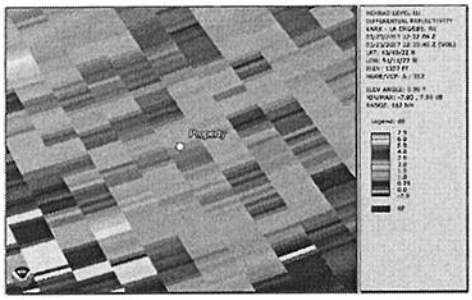
Figure 22: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:20 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



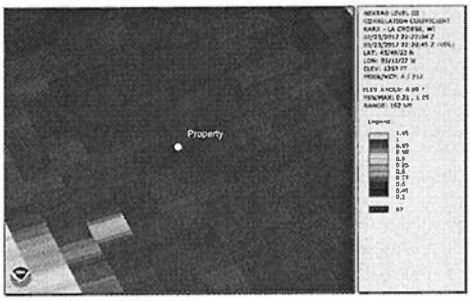
(a) Level II 0.86° Base Reflectivity



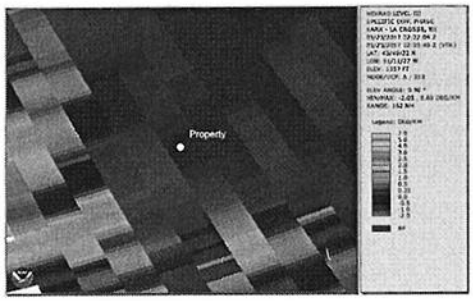
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

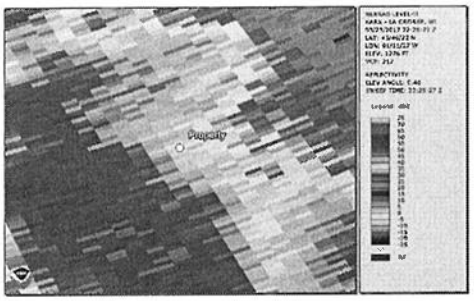


(d) Level III 0.90° Correlation Coefficient

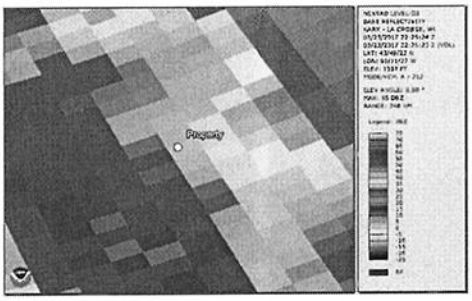


(e) Level III 0.90° Specific Differential Phase

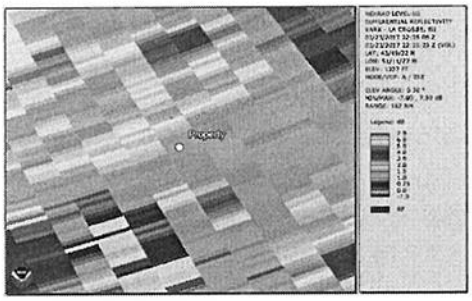
Figure 23: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:20 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



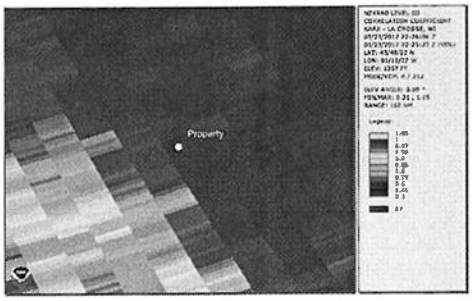
(a) Level II 0.48° Base Reflectivity



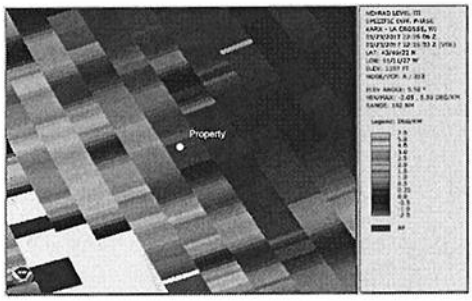
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

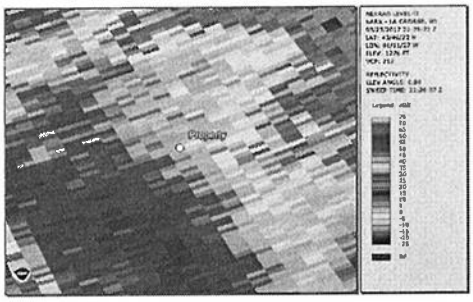


(d) Level III 0.50° Correlation Coefficient

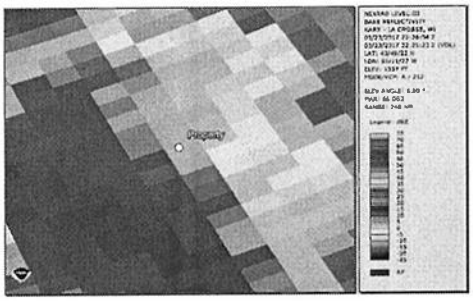


(e) Level III 0.50° Specific Differential Phase

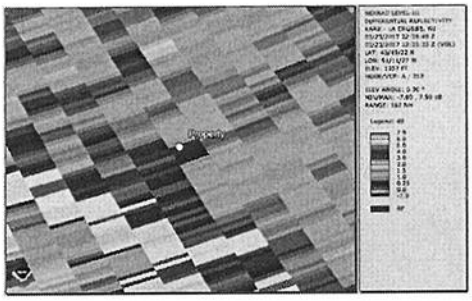
Figure 24: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:25 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



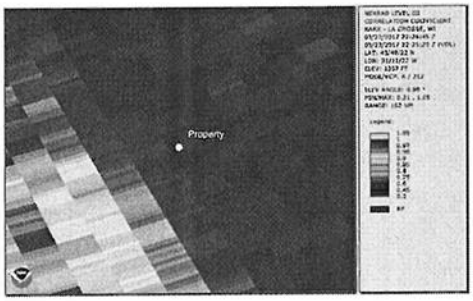
(a) Level II 0.88° Base Reflectivity



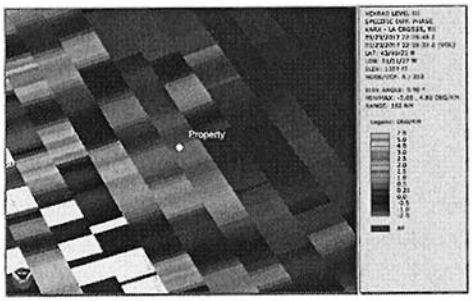
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

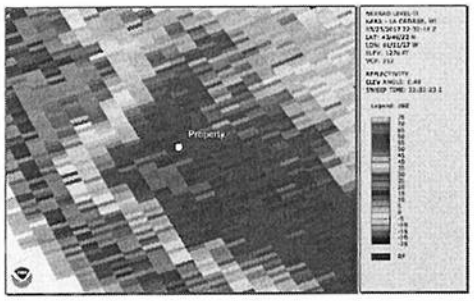


(d) Level III 0.90° Correlation Coefficient

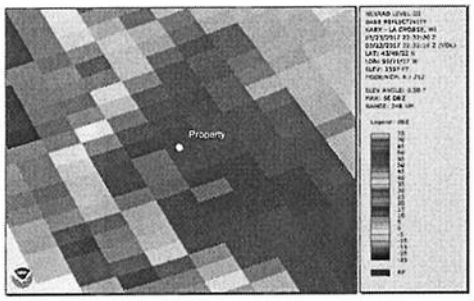


(e) Level III 0.90° Specific Differential Phase

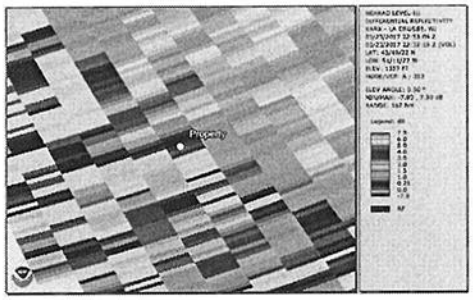
Figure 25: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:25 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



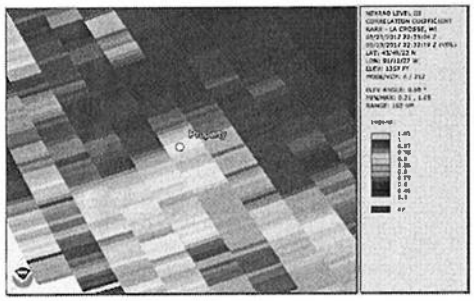
(a) Level II 0.49° Base Reflectivity



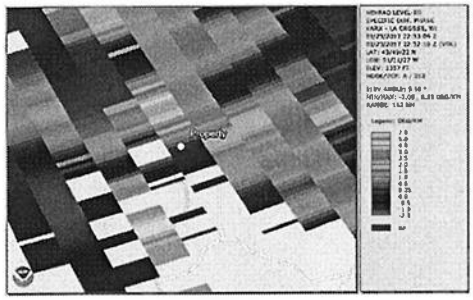
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

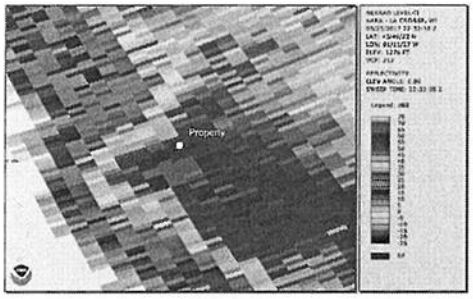


(d) Level III 0.50° Correlation Coefficient

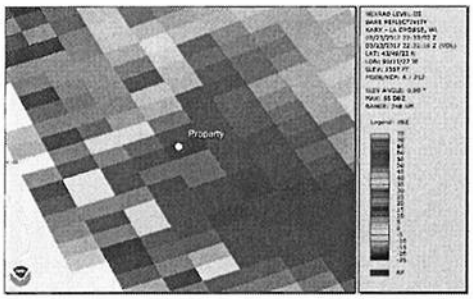


(e) Level III 0.50° Specific Differential Phase

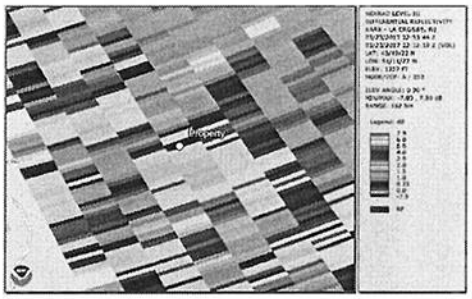
Figure 26: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:32 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



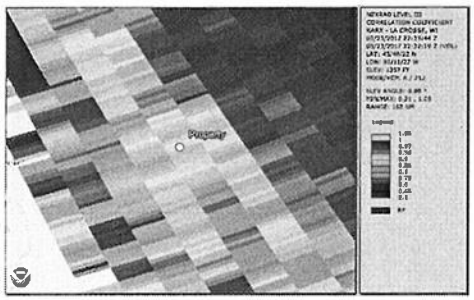
(a) Level II 0.86° Base Reflectivity



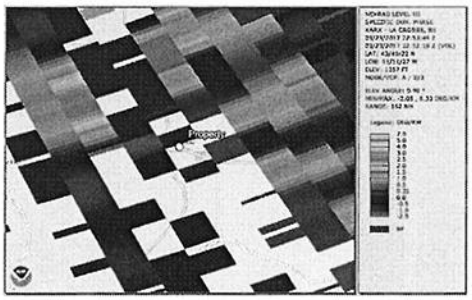
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

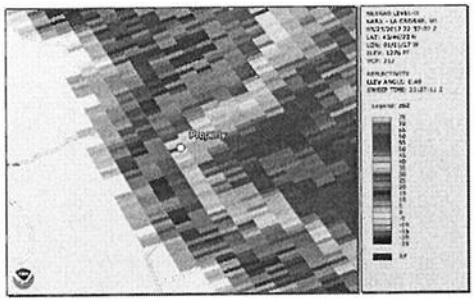


(d) Level III 0.90° Correlation Coefficient

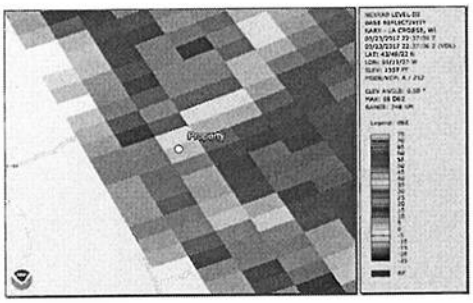


(e) Level III 0.90° Specific Differential Phase

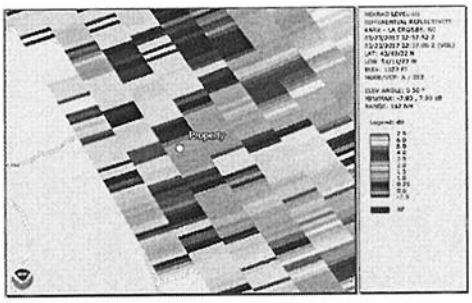
Figure 27: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:32 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



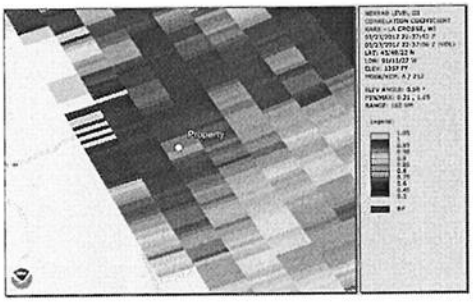
(a) Level II 0.48° Base Reflectivity



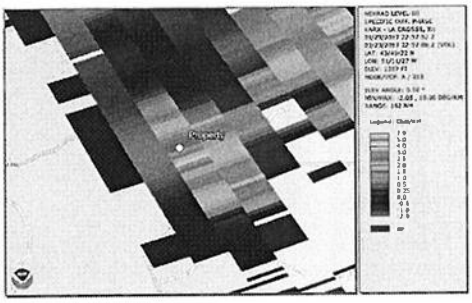
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

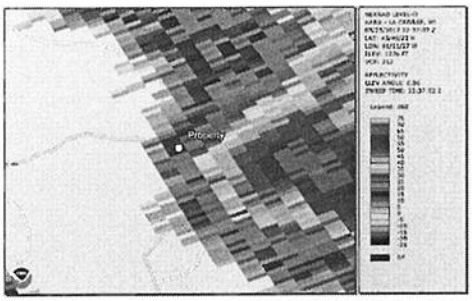


(d) Level III 0.50° Correlation Coefficient

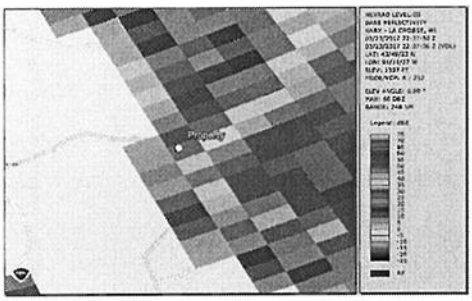


(e) Level III 0.50° Specific Differential Phase

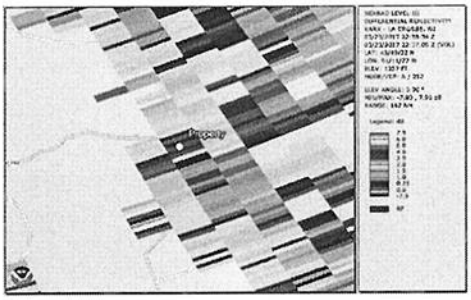
Figure 28: KARX (a) NEXRAD Level II ∼0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ∼0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:37 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



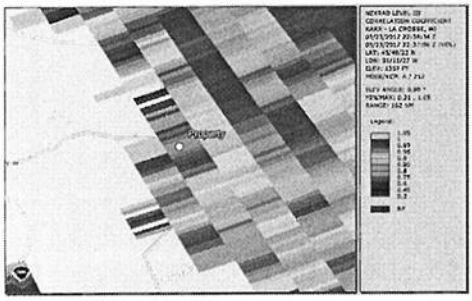
(a) Level II 0.86° Base Reflectivity



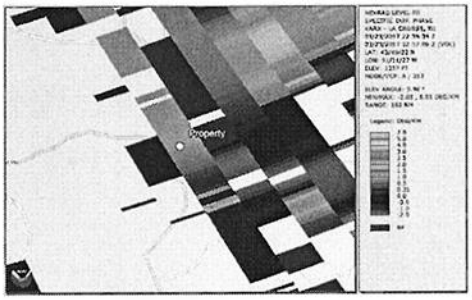
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity



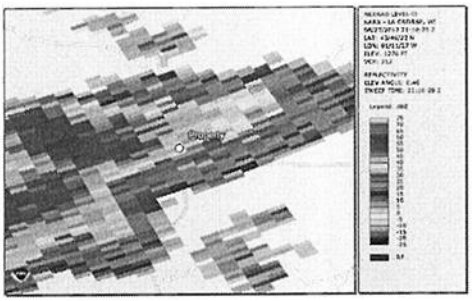
(d) Level III 0.90° Correlation Coefficient



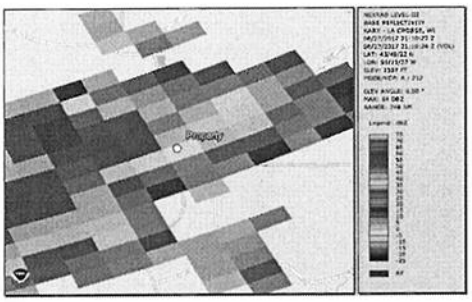
(e) Level III 0.90° Specific Differential Phase

Figure 29: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 5:37 PM (CDT) on 23 March 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".

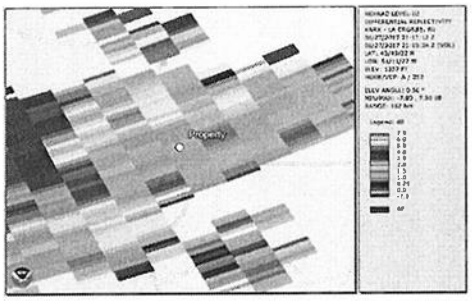
F. KARX Imagery | 27 August 2017



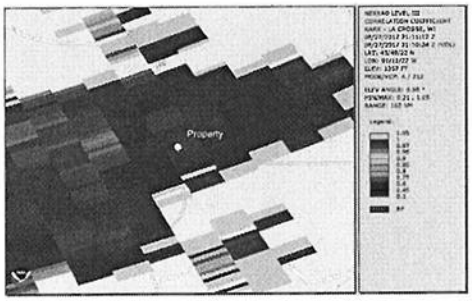
(a) Level II 0.46° Base Reflectivity



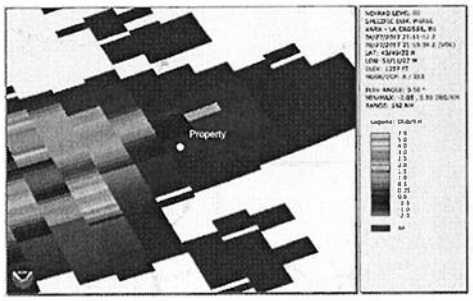
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

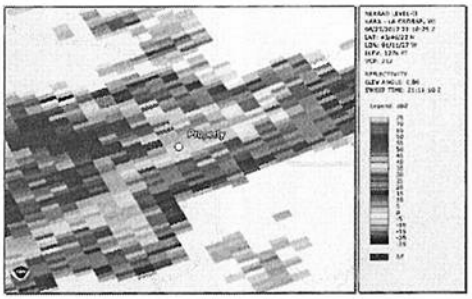


(d) Level III 0.50° Correlation Coefficient

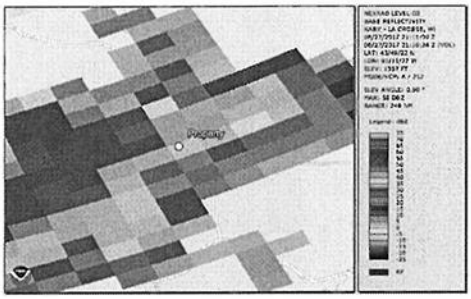


(e) Level III 0.50° Specific Differential Phase

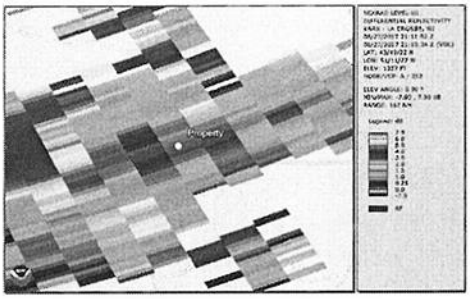
Figure 30: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:10 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



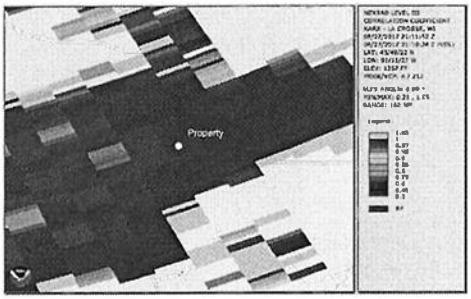
(a) Level II 0.86° Base Reflectivity



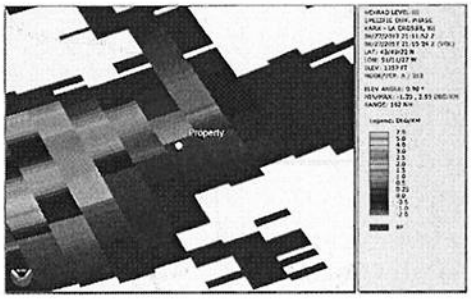
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

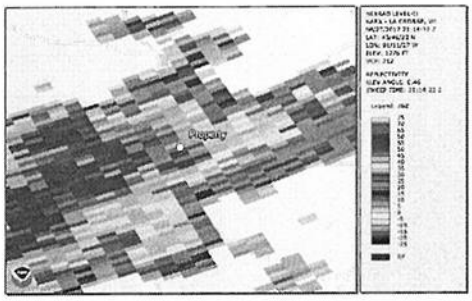


(d) Level III 0.90° Correlation Coefficient

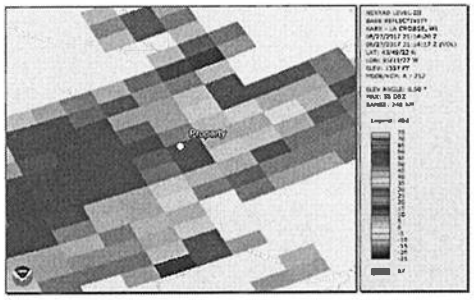


(e) Level III 0.90° Specific Differential Phase

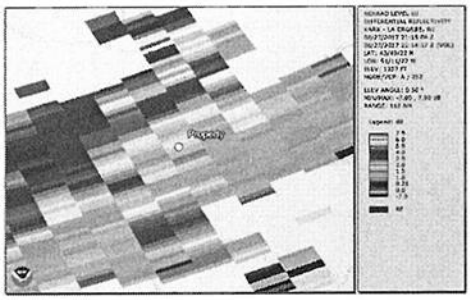
Figure 31: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:10 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



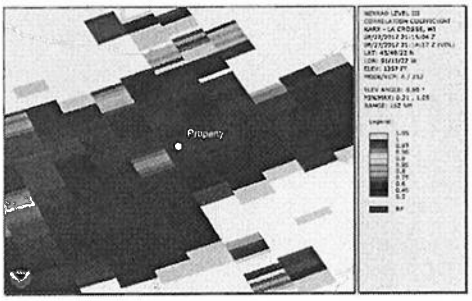
(a) Level II 0.46° Base Reflectivity



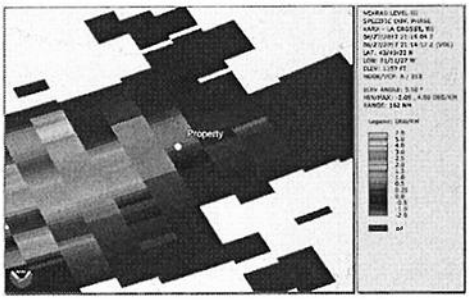
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

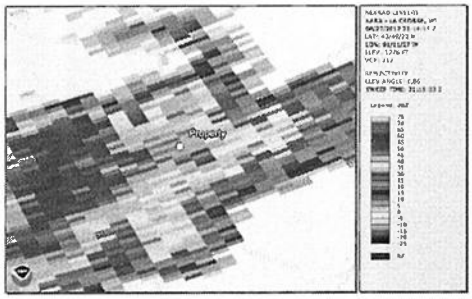


(d) Level III 0.50° Correlation Coefficient

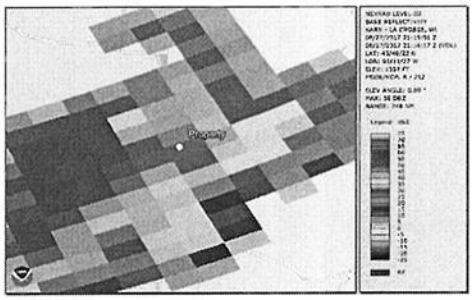


(e) Level III 0.50° Specific Differential Phase

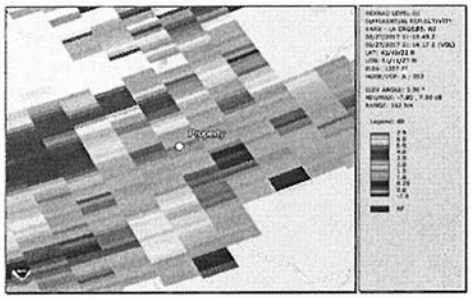
Figure 32: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:14 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



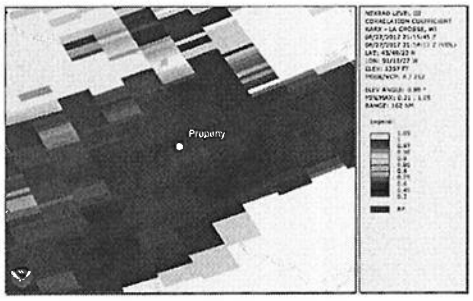
(a) Level II 0.86° Base Reflectivity



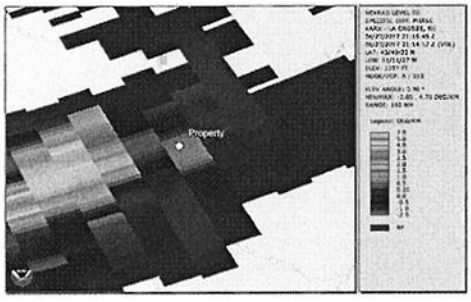
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

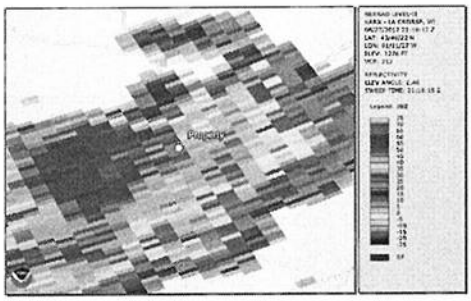


(d) Level III 0.90° Correlation Coefficient

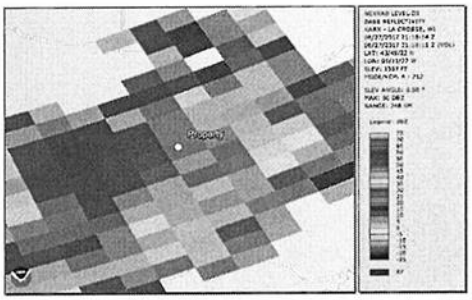


(e) Level III 0.90° Specific Differential Phase

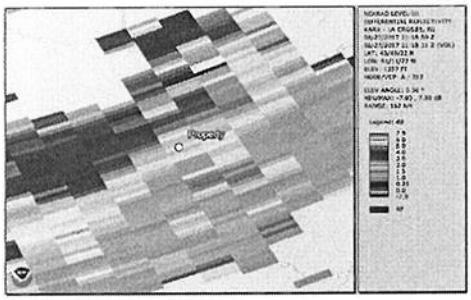
Figure 33: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:14 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



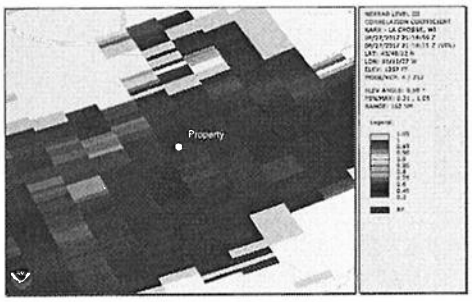
(a) Level II 0.46° Base Reflectivity



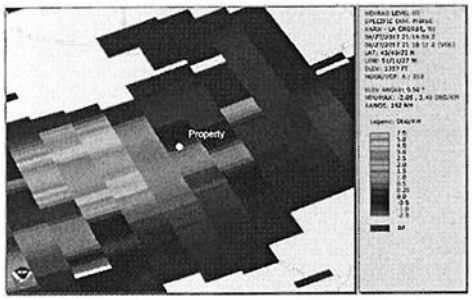
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

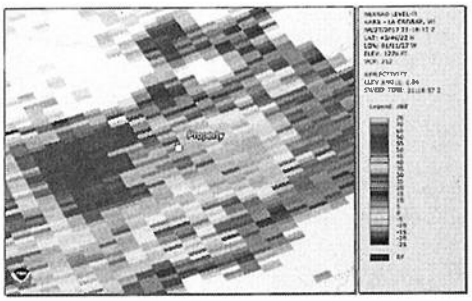


(d) Level III 0.50° Correlation Coefficient

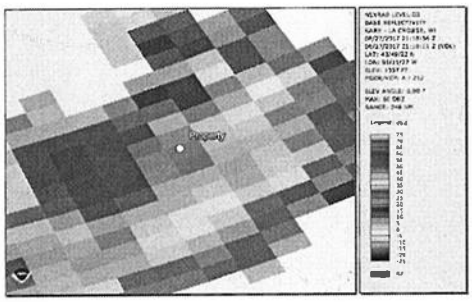


(e) Level III 0.50° Specific Differential Phase

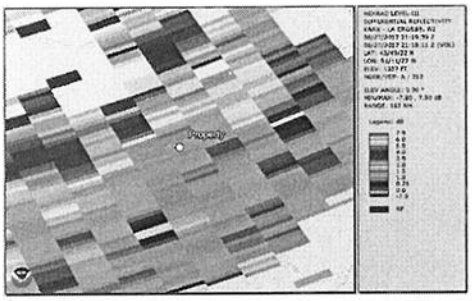
Figure 34: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:18 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



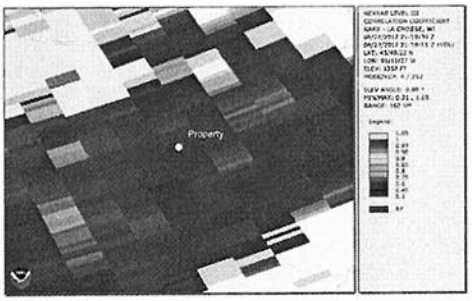
(a) Level II 0.86° Base Reflectivity



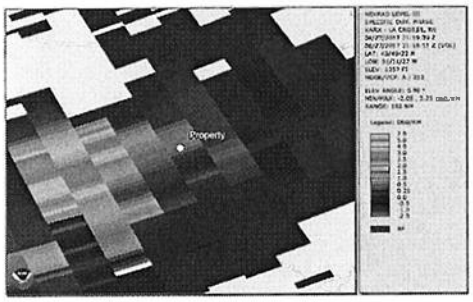
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

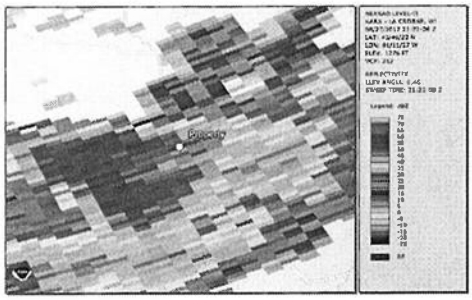


(d) Level III 0.90° Correlation Coefficient

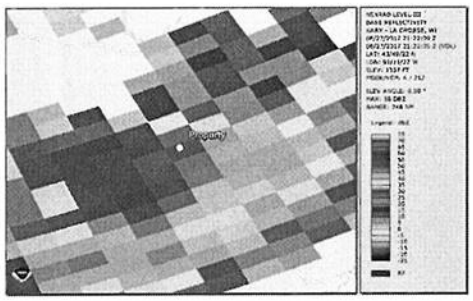


(e) Level III 0.90° Specific Differential Phase

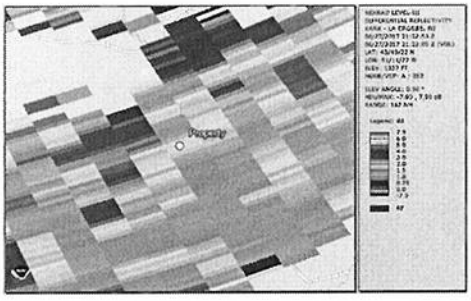
Figure 35: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:18 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



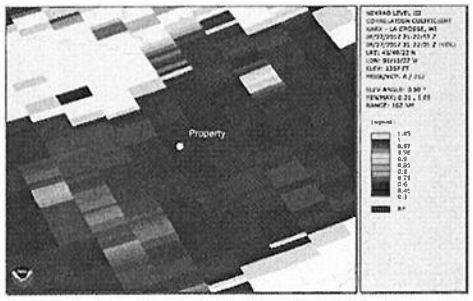
(a) Level II 0.46° Base Reflectivity



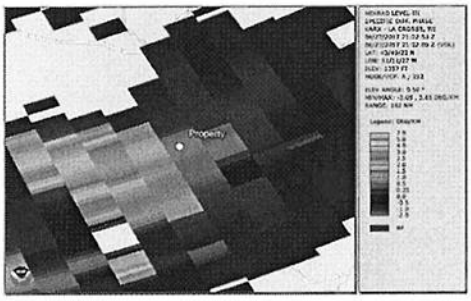
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

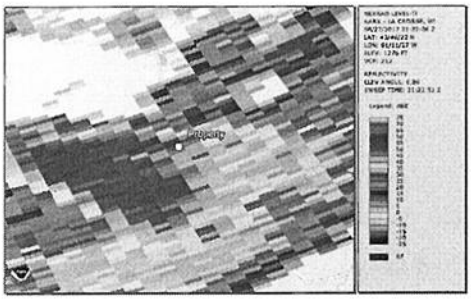


(d) Level III 0.50° Correlation Coefficient

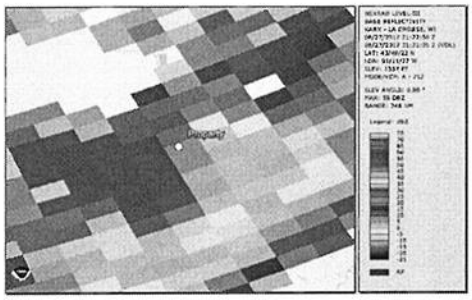


(e) Level III 0.50° Specific Differential Phase

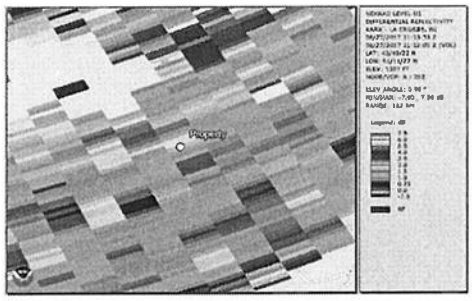
Figure 36: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:22 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



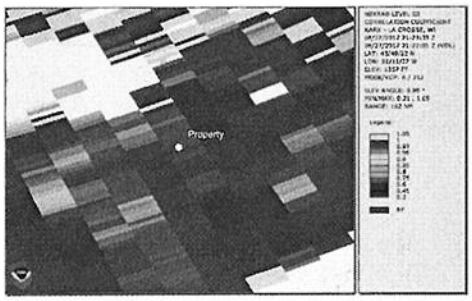
(a) Level II 0.86° Base Reflectivity



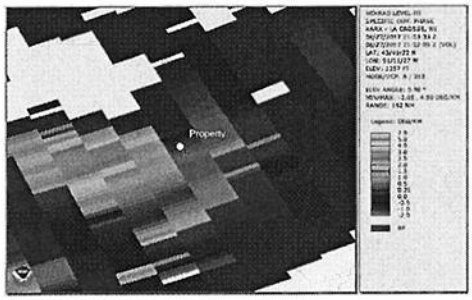
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

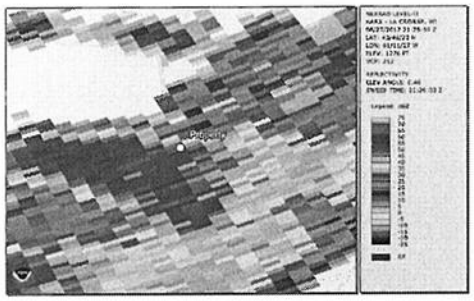


(d) Level III 0.90° Correlation Coefficient

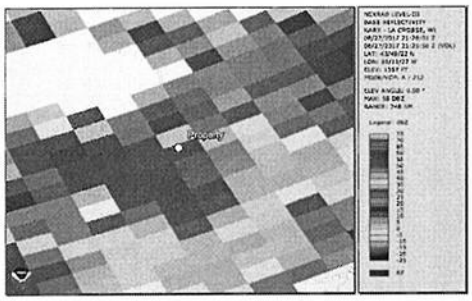


(e) Level III 0.90° Specific Differential Phase

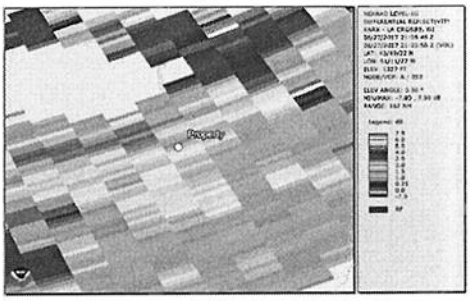
Figure 37: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:22 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



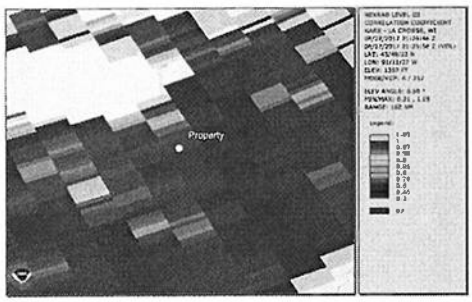
(a) Level II 0.46° Base Reflectivity



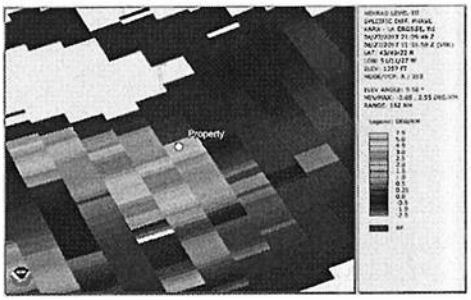
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

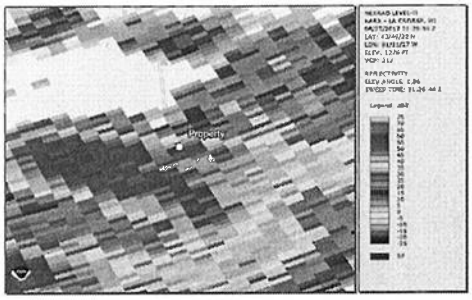


(d) Level III 0.50° Correlation Coefficient

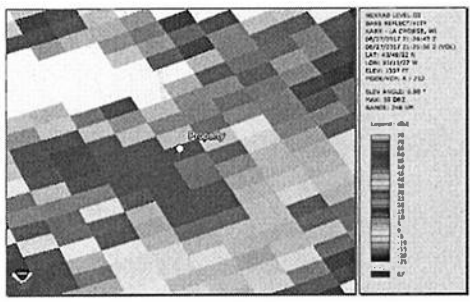


(e) Level III 0.50° Specific Differential Phase

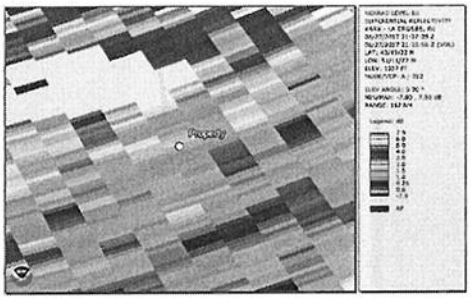
Figure 38: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:25 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



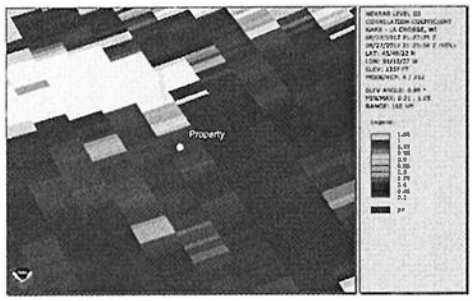
(a) Level II 0.86° Base Reflectivity



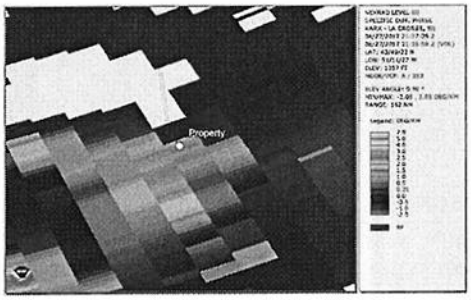
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

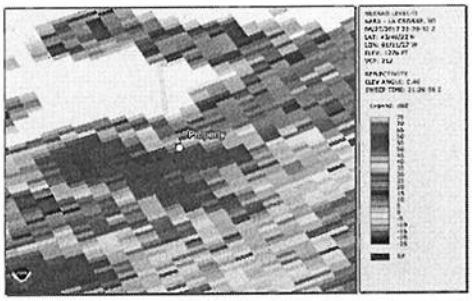


(d) Level III 0.90° Correlation Coefficient

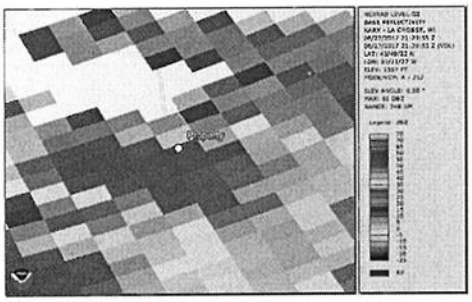


(e) Level III 0.90° Specific Differential Phase

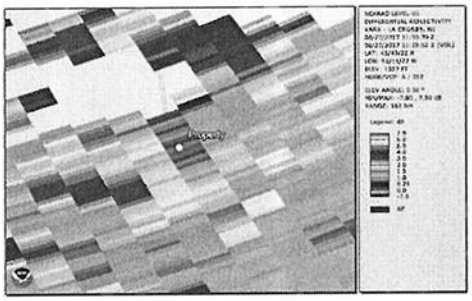
Figure 39: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:25 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



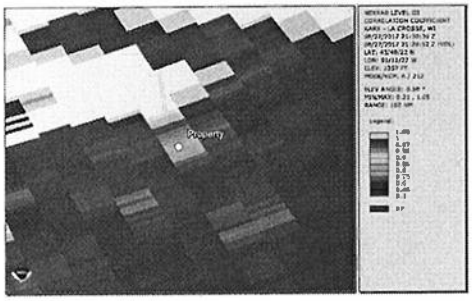
(a) Level II 0.46° Base Reflectivity



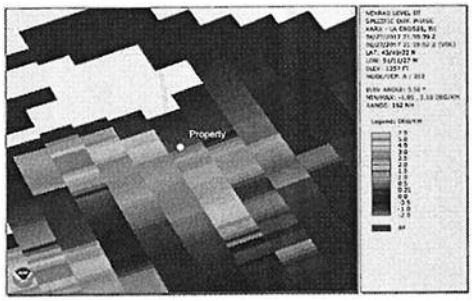
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

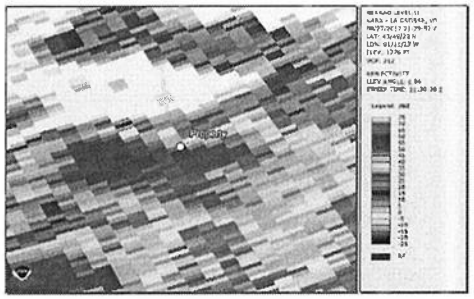


(d) Level III 0.50° Correlation Coefficient

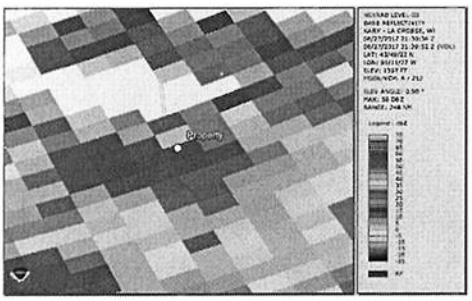


(e) Level III 0.50° Specific Differential Phase

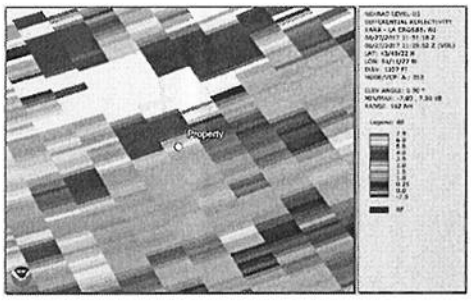
Figure 40: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:29 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



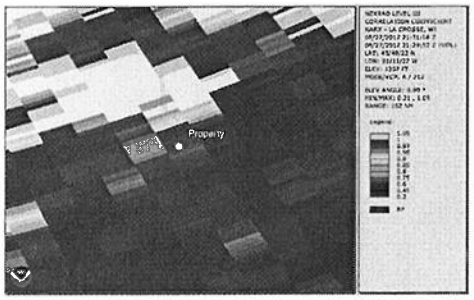
(a) Level II 0.86° Base Reflectivity



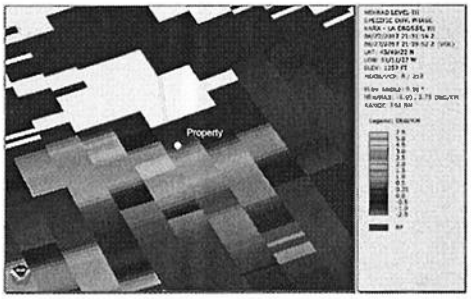
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

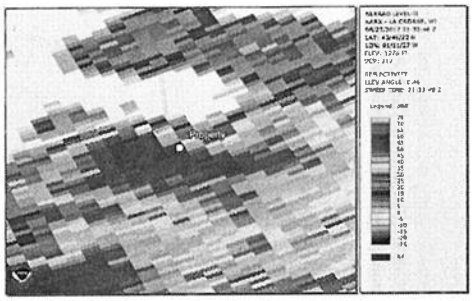


(d) Level III 0.90° Correlation Coefficient

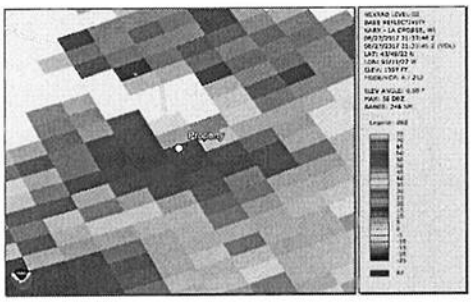


(e) Level III 0.90° Specific Differential Phase

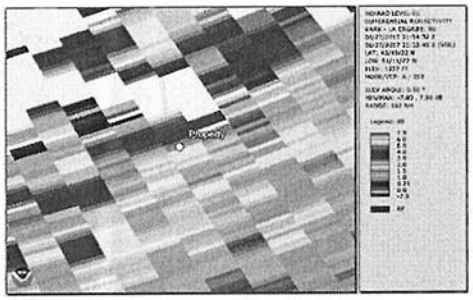
Figure 41: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:29 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



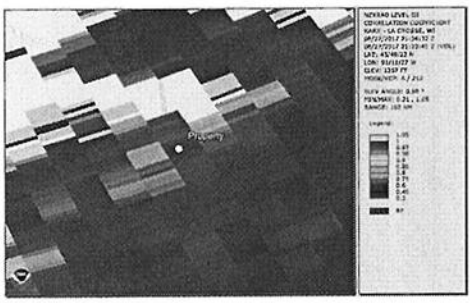
(a) Level II 0.46° Base Reflectivity



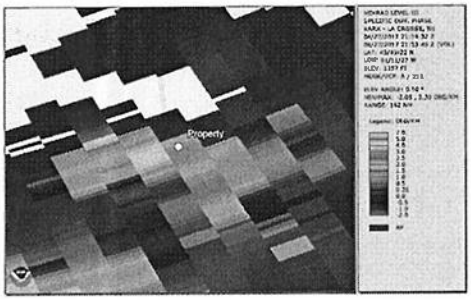
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

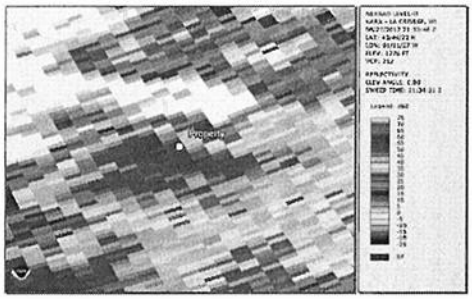


(d) Level III 0.50° Correlation Coefficient

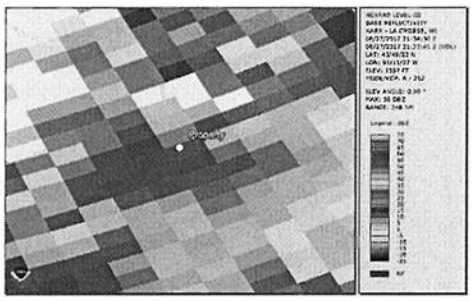


(e) Level III 0.50° Specific Differential Phase

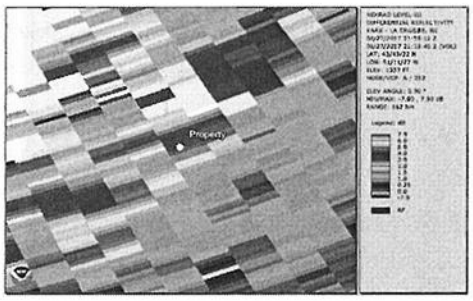
Figure 42: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:33 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



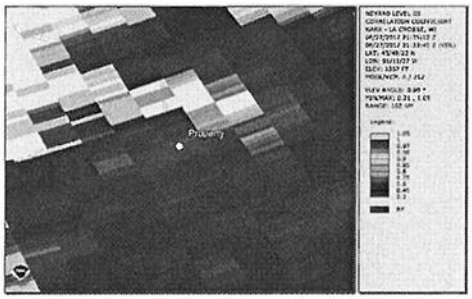
(a) Level II 0.88° Base Reflectivity



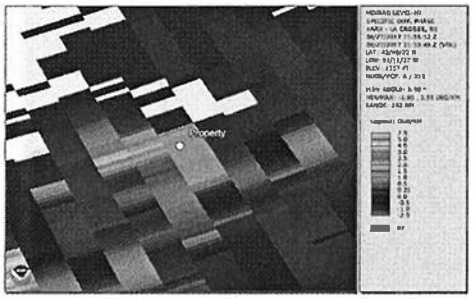
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

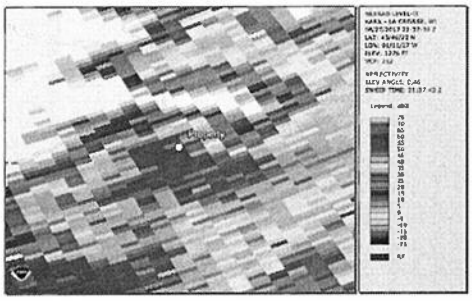


(d) Level III 0.90° Correlation Coefficient

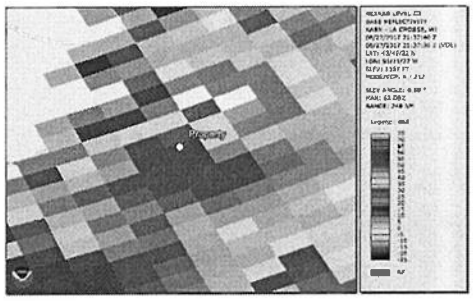


(e) Level III 0.90° Specific Differential Phase

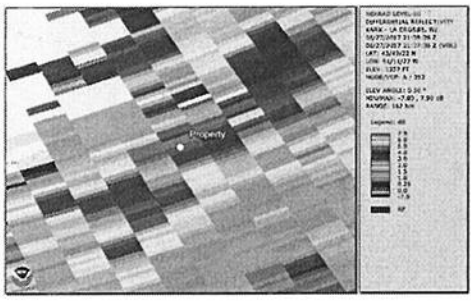
Figure 43: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:33 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



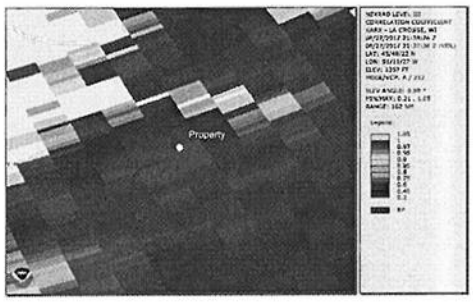
(a) Level II 0.46° Base Reflectivity



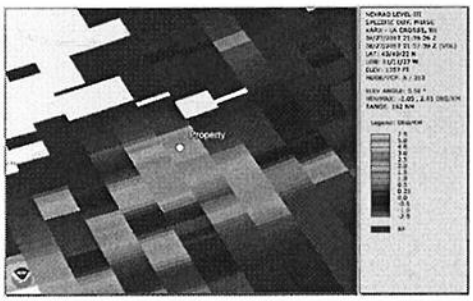
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

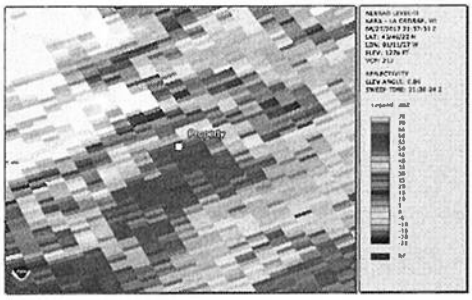


(d) Level III 0.50° Correlation Coefficient

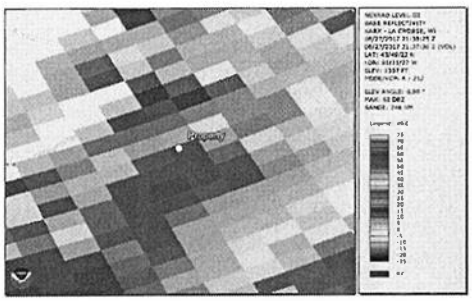


(e) Level III 0.50° Specific Differential Phase

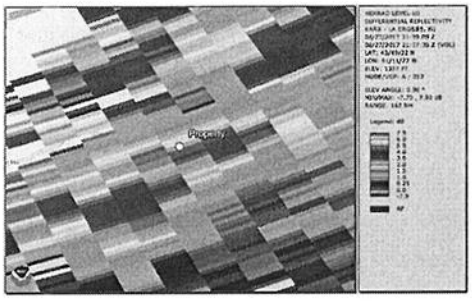
Figure 44: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:37 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



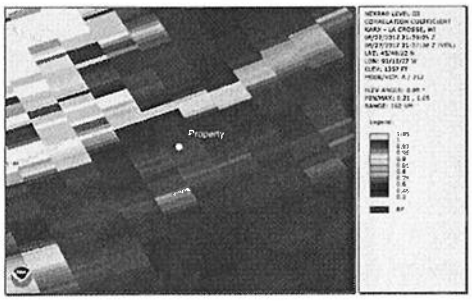
(a) Level II 0.86° Base Reflectivity



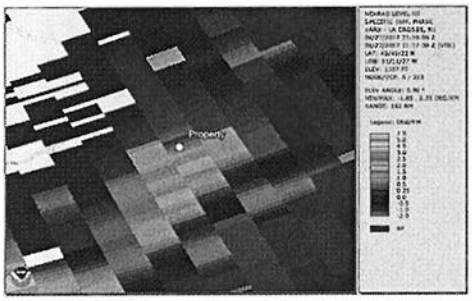
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

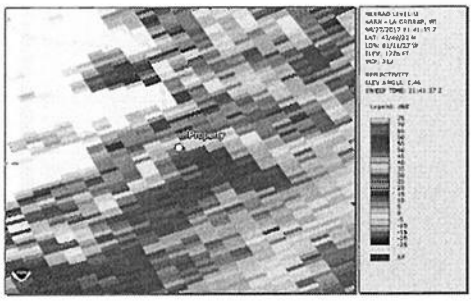


(d) Level III 0.90° Correlation Coefficient

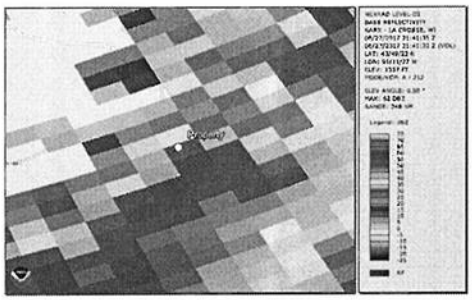


(e) Level III 0.90° Specific Differential Phase

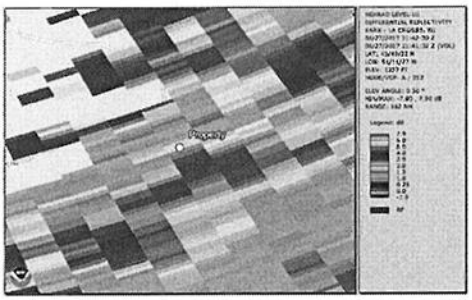
Figure 45: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:37 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



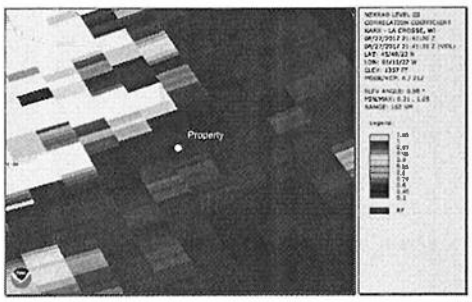
(a) Level II 0.46° Base Reflectivity



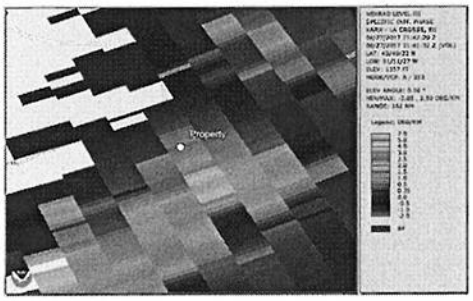
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

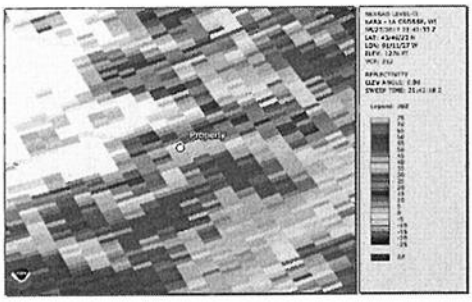


(d) Level III 0.50° Correlation Coefficient

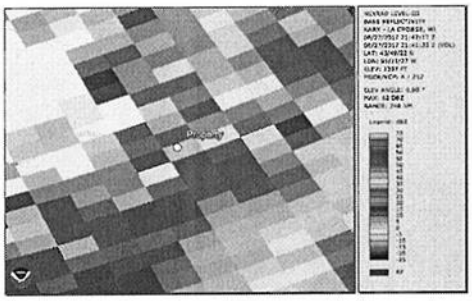


(e) Level III 0.50° Specific Differential Phase

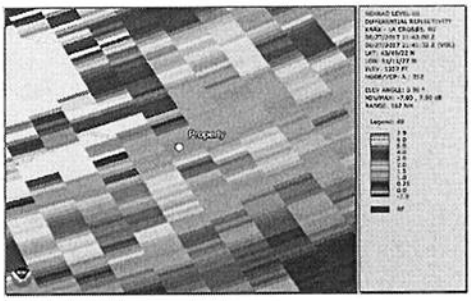
Figure 46: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:41 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



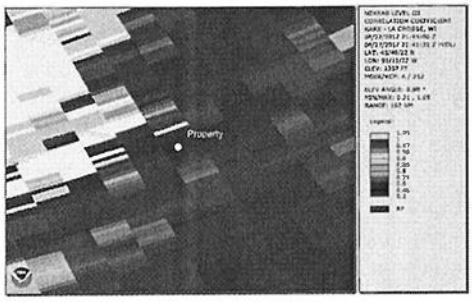
(a) Level II 0.88° Base Reflectivity



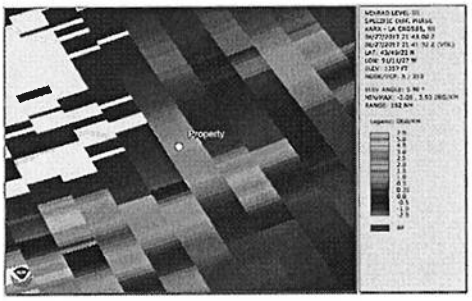
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

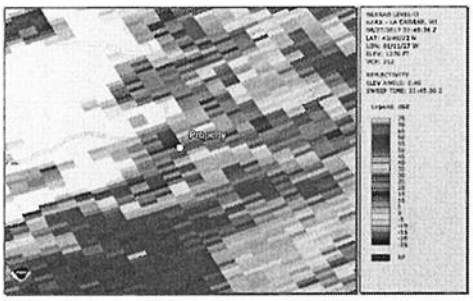


(d) Level III 0.90° Correlation Coefficient

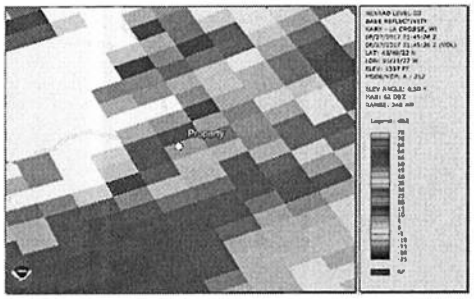


(e) Level III 0.90° Specific Differential Phase

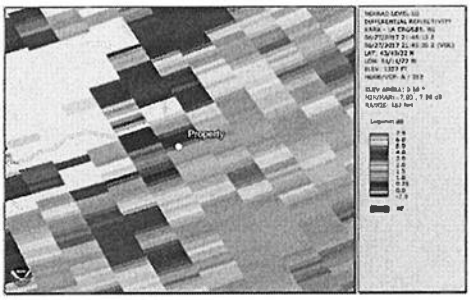
Figure 47: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:41 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



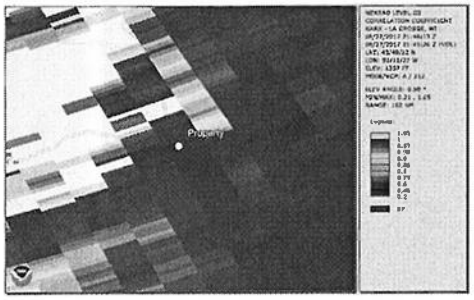
(a) Level II 0.46° Base Reflectivity



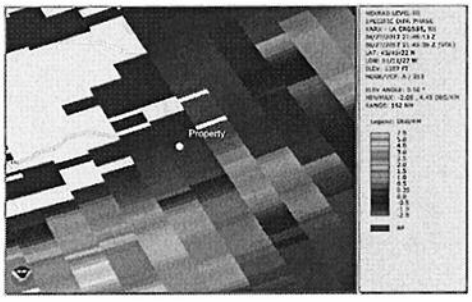
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

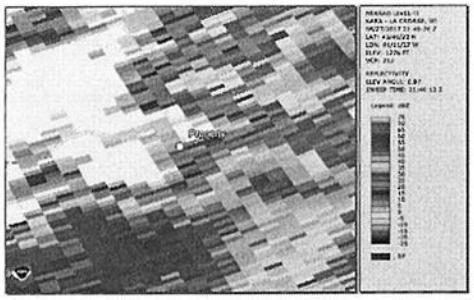


(d) Level III 0.50° Correlation Coefficient

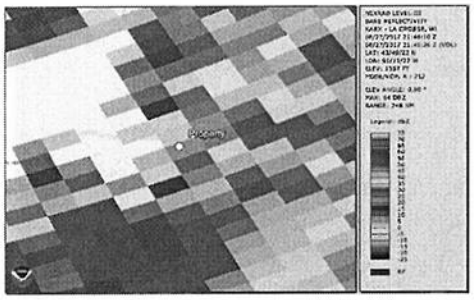


(e) Level III 0.50° Specific Differential Phase

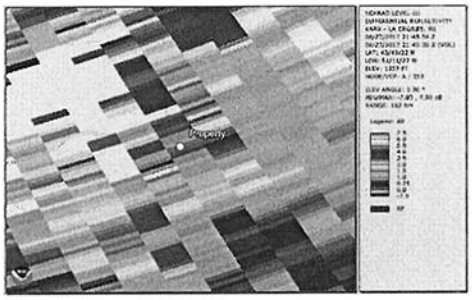
Figure 48: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:45 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



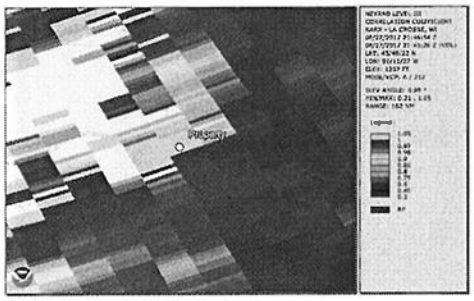
(a) Level II 0.87° Base Reflectivity



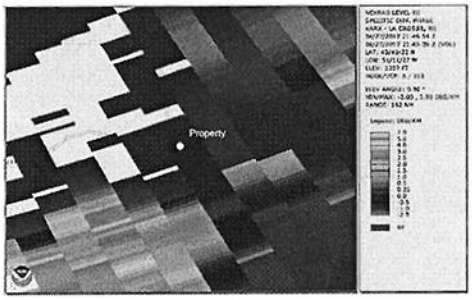
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

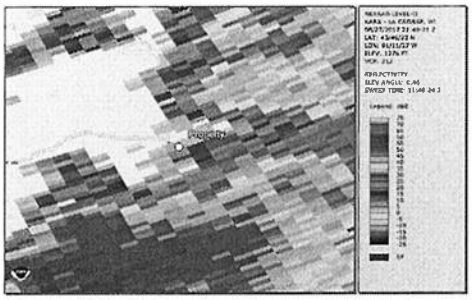


(d) Level III 0.90° Correlation Coefficient

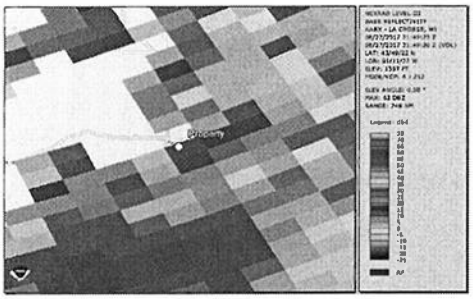


(e) Level III 0.90° Specific Differential Phase

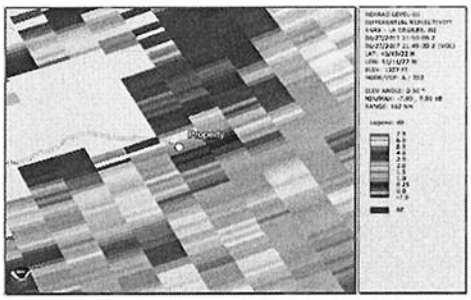
Figure 49: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:45 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



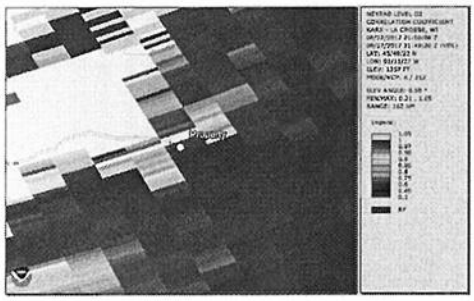
(a) Level II 0.46° Base Reflectivity



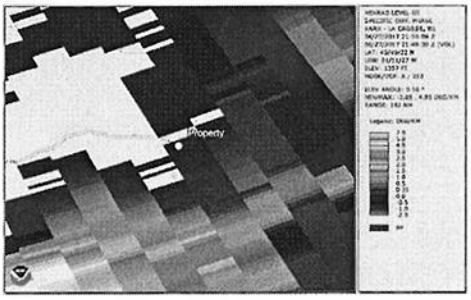
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

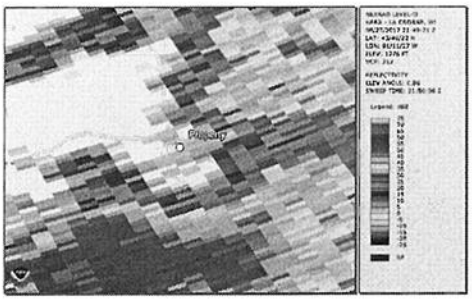


(d) Level III 0.50° Correlation Coefficient

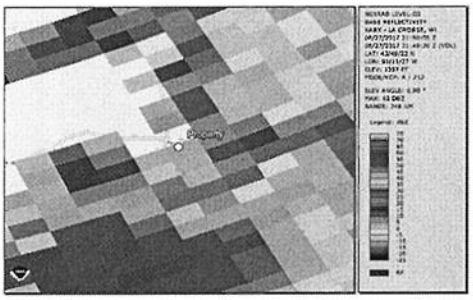


(e) Level III 0.50° Specific Differential Phase

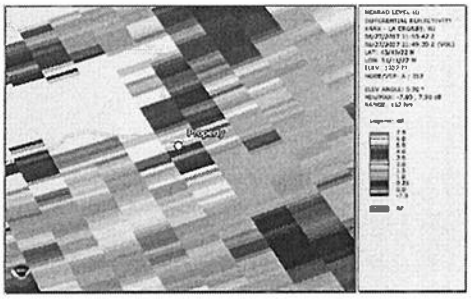
Figure 50: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:49 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



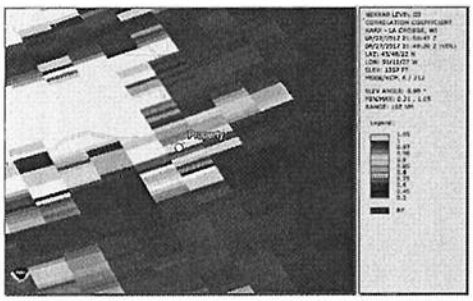
(a) Level II 0.86° Base Reflectivity



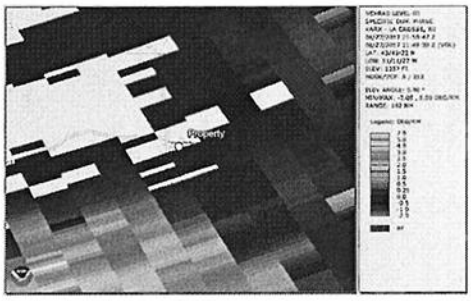
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

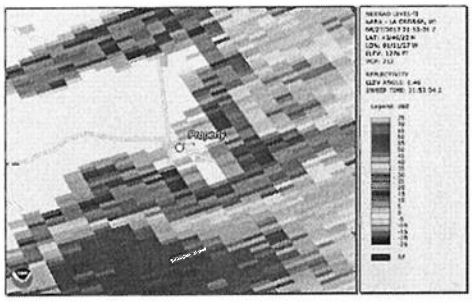


(d) Level III 0.90° Correlation Coefficient

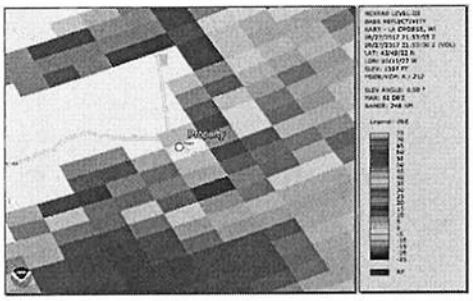


(e) Level III 0.90° Specific Differential Phase

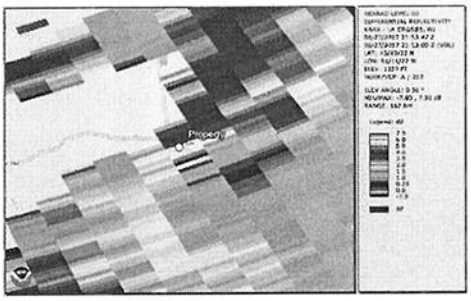
Figure 51: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:49 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



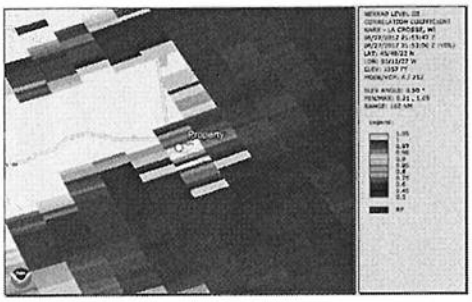
(a) Level II 0.46° Base Reflectivity



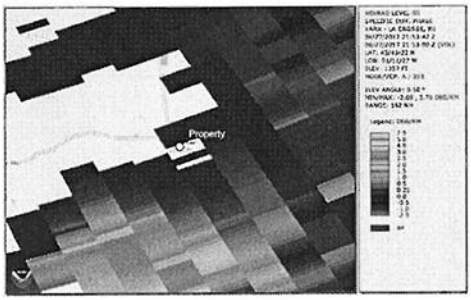
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

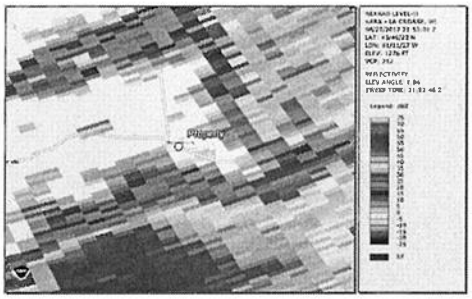


(d) Level III 0.50° Correlation Coefficient

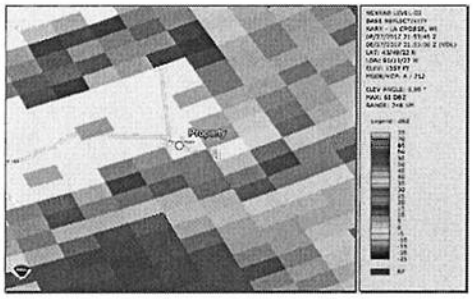


(e) Level III 0.50° Specific Differential Phase

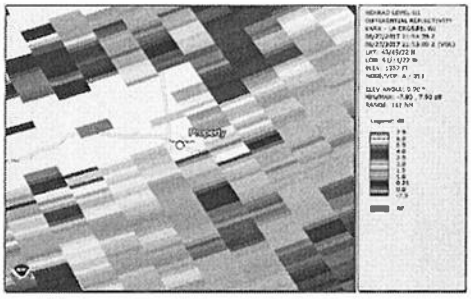
Figure 52: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:53 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



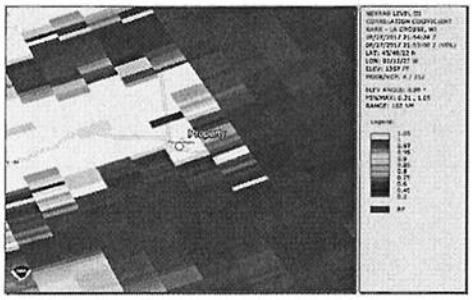
(a) Level II 0.86° Base Reflectivity



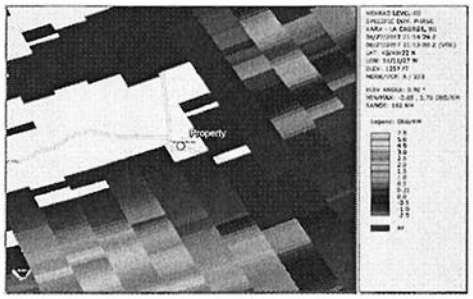
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity



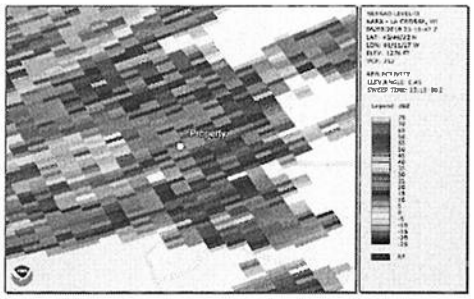
(d) Level III 0.90° Correlation Coefficient



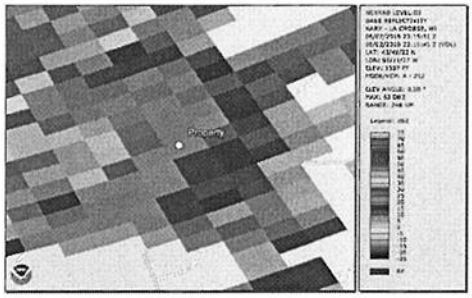
(e) Level III 0.90° Specific Differential Phase

Figure 53: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 4:53 PM (CDT) on 27 August 2017. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".

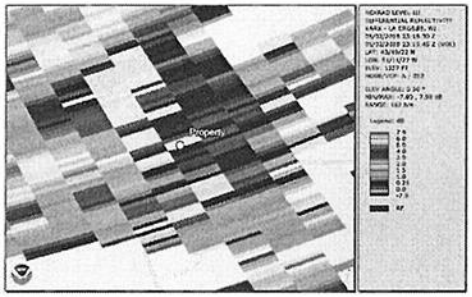
G. KARX Imagery | 2 May 2018



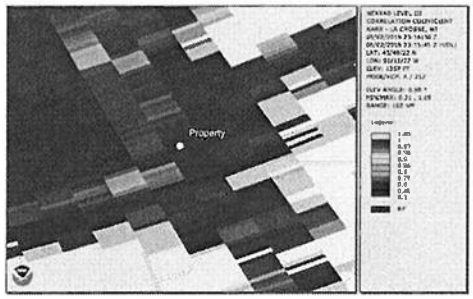
(a) Level II 0.45° Base Reflectivity



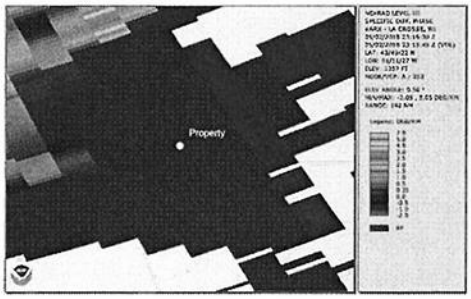
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

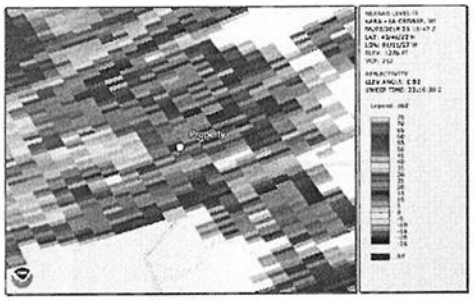


(d) Level III 0.50° Correlation Coefficient

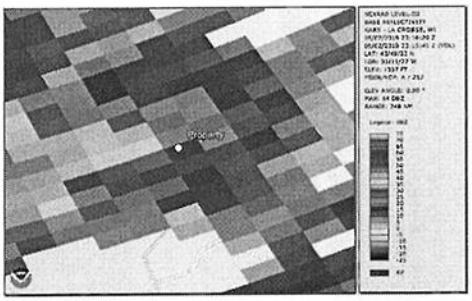


(e) Level III 0.50° Specific Differential Phase

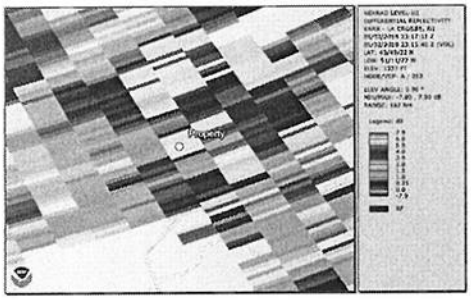
Figure 54: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:15 PM (CDT) on 2 May 2018. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



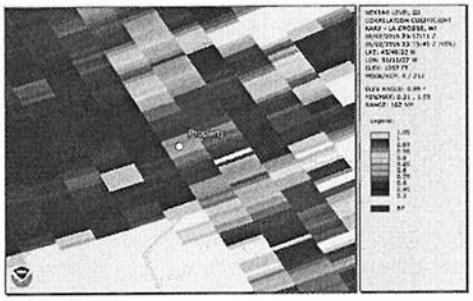
(a) Level II 0.82° Base Reflectivity



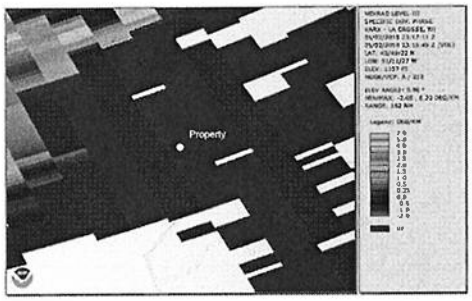
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

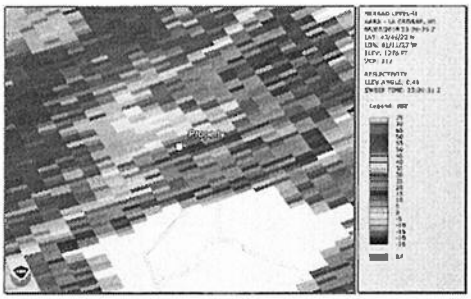


(d) Level III 0.90° Correlation Coefficient

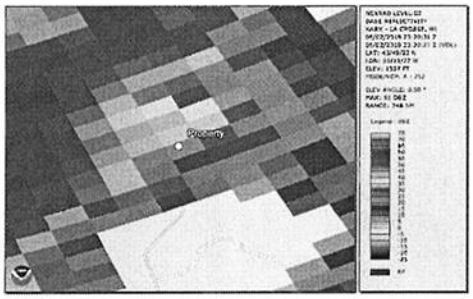


(e) Level III 0.90° Specific Differential Phase

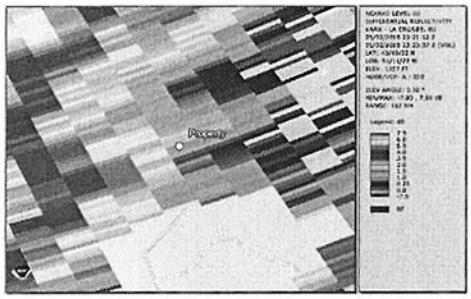
Figure 55: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:15 PM (CDT) on 2 May 2018. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



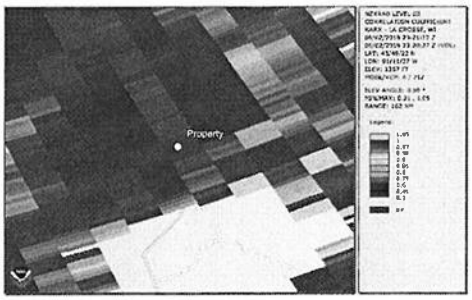
(a) Level II 0.45° Base Reflectivity



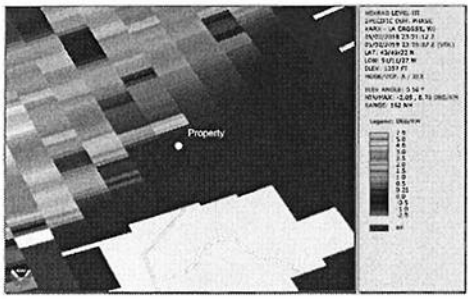
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

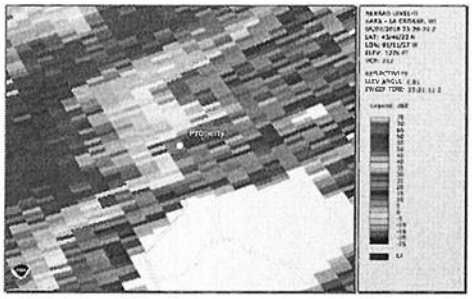


(d) Level III 0.50° Correlation Coefficient

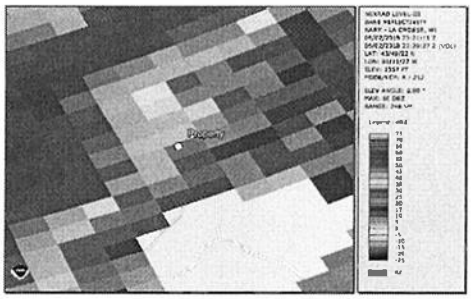


(e) Level III 0.50° Specific Differential Phase

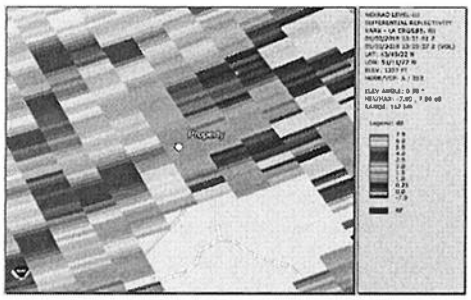
Figure 56: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:20 PM (CDT) on 2 May 2018. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



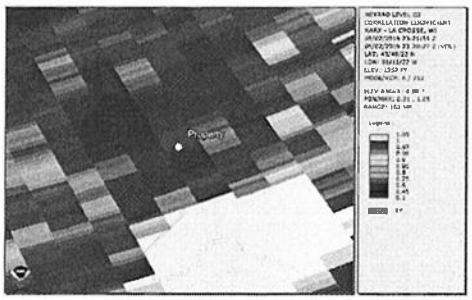
(a) Level II 0.81° Base Reflectivity



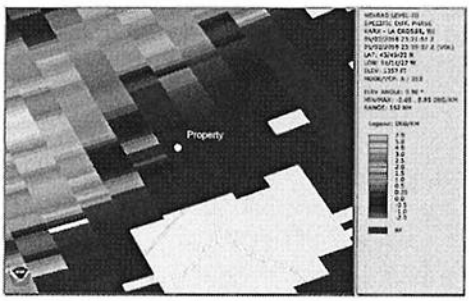
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

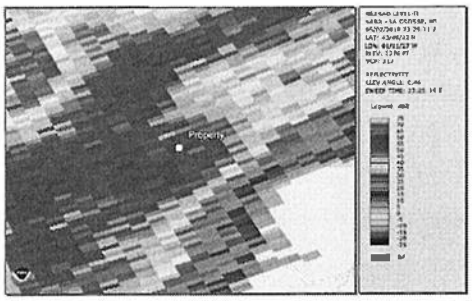


(d) Level III 0.90° Correlation Coefficient

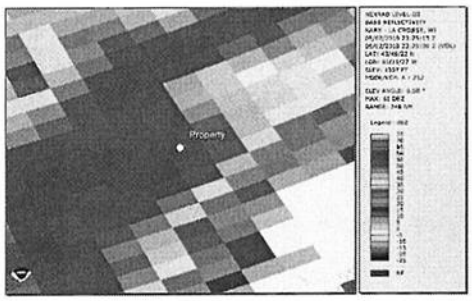


(e) Level III 0.90° Specific Differential Phase

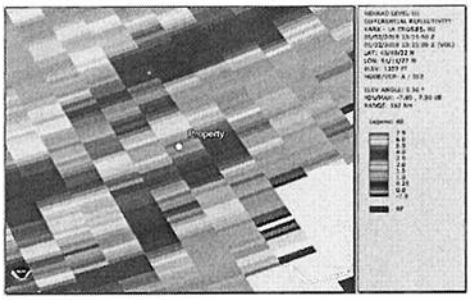
Figure 57: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:20 PM (CDT) on 2 May 2018. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



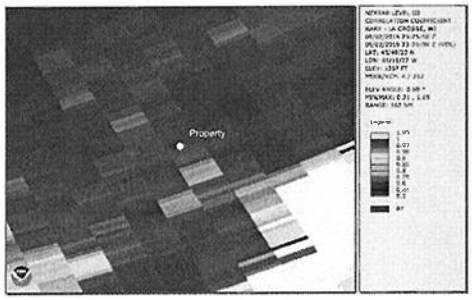
(a) Level II 0.46° Base Reflectivity



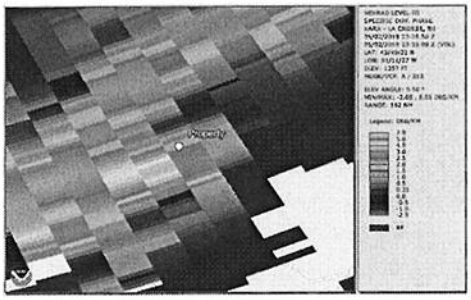
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

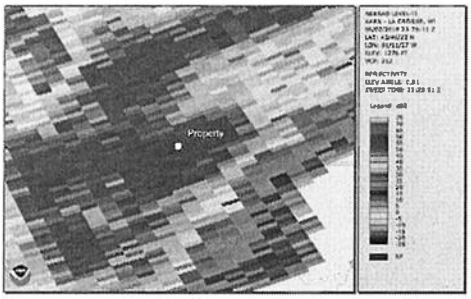


(d) Level III 0.50° Correlation Coefficient

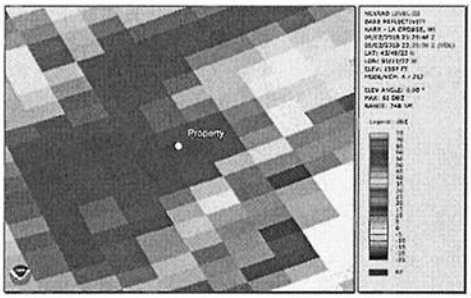


(e) Level III 0.50° Specific Differential Phase

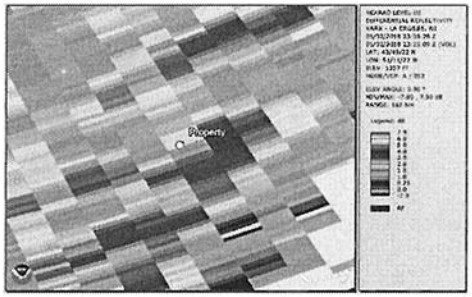
Figure 58: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:25 PM (CDT) on 2 May 2019. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



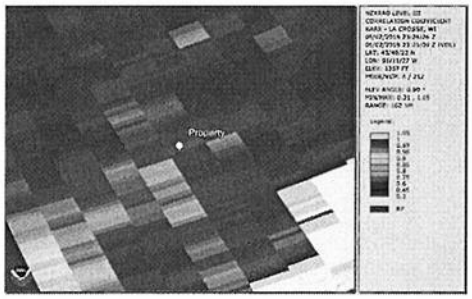
(a) Level II 0.81° Base Reflectivity



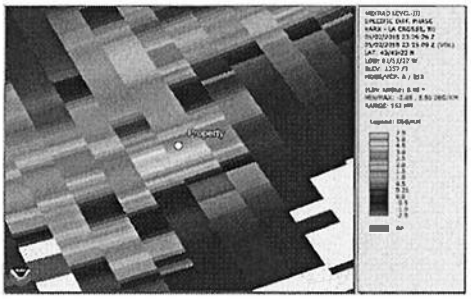
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

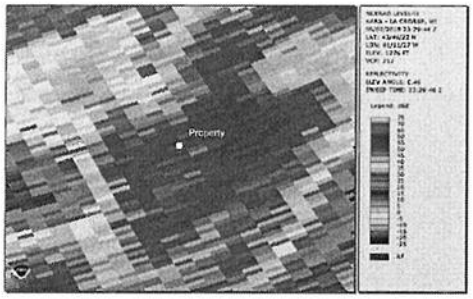


(d) Level III 0.90° Correlation Coefficient

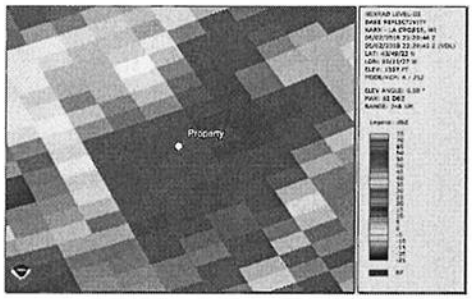


(e) Level III 0.90° Specific Differential Phase

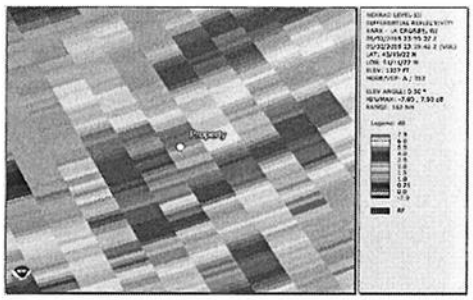
Figure 59: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:25 PM (CDT) on 2 May 2019. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



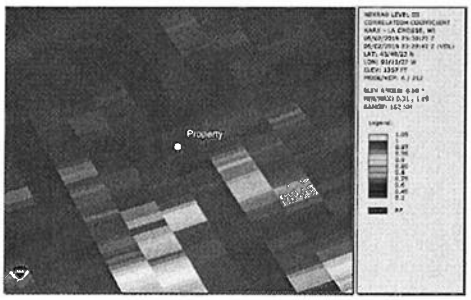
(a) Level II 0.46° Base Reflectivity



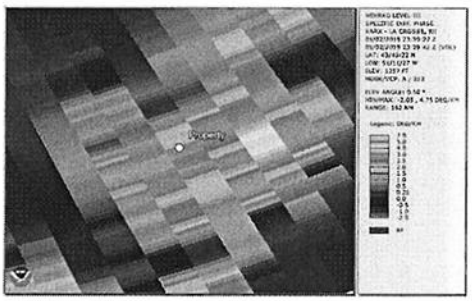
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

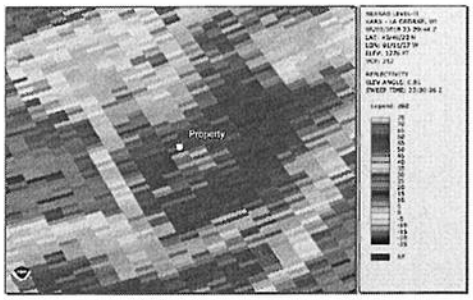


(d) Level III 0.50° Correlation Coefficient

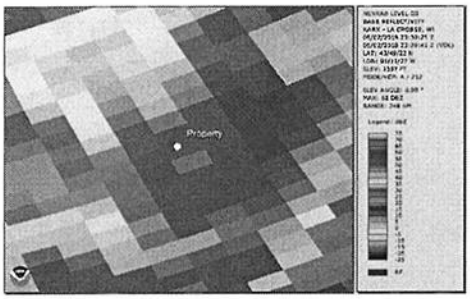


(e) Level III 0.50° Specific Differential Phase

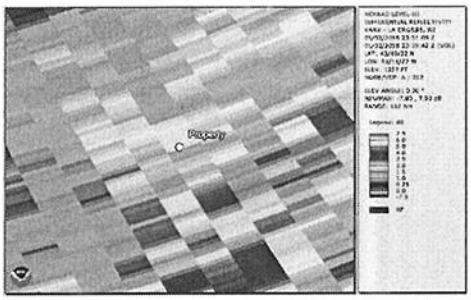
Figure 60: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:29 PM (CDT) on 2 May 2018. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



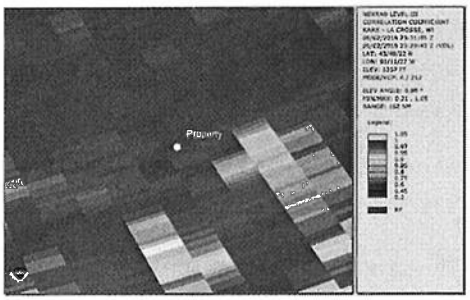
(a) Level II 0.81° Base Reflectivity



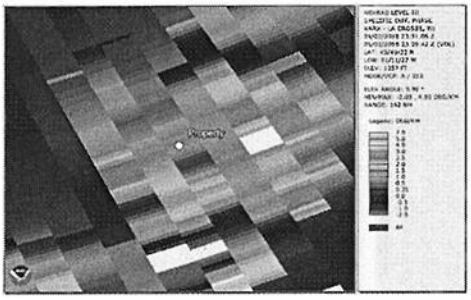
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

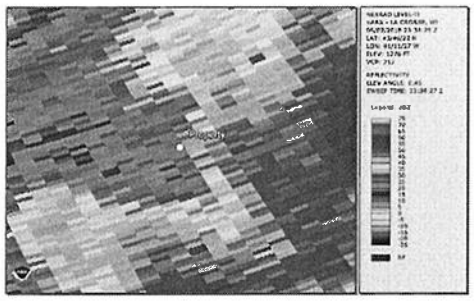


(d) Level III 0.90° Correlation Coefficient

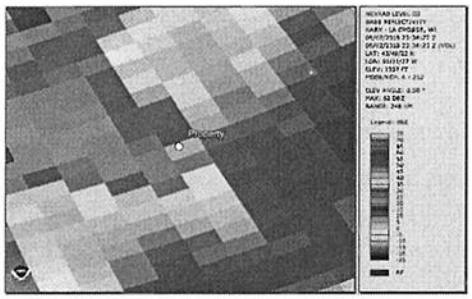


(e) Level III 0.90° Specific Differential Phase

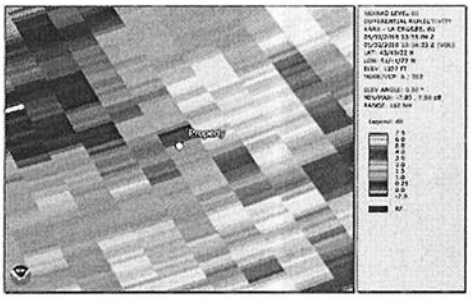
Figure 61: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:29 PM (CDT) on 2 May 2018. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



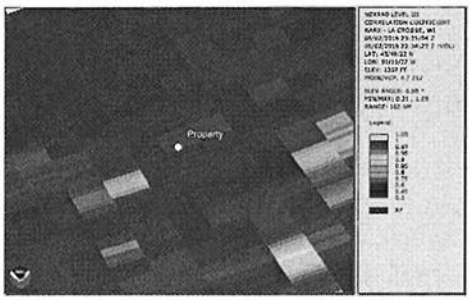
(a) Level II 0.45° Base Reflectivity



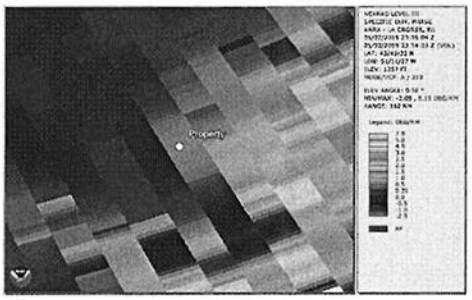
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

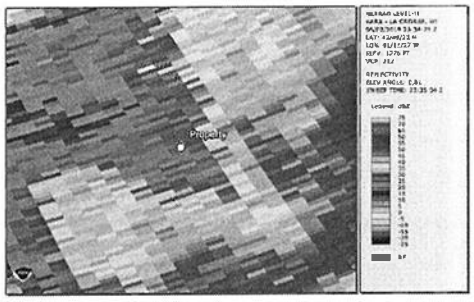


(d) Level III 0.50° Correlation Coefficient

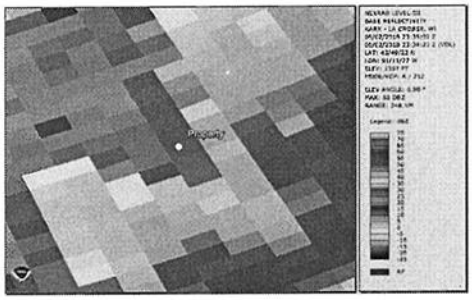


(e) Level III 0.50° Specific Differential Phase

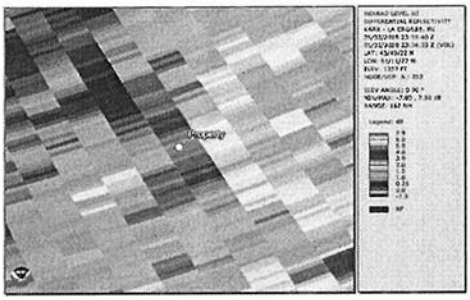
Figure 62: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:34 PM (CDT) on 2 May 2018. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



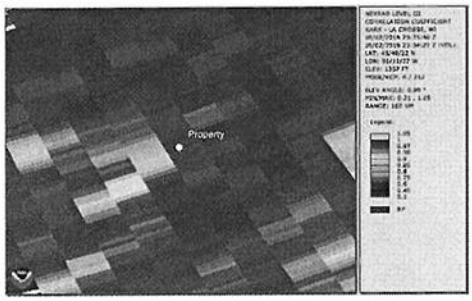
(a) Level II 0.81° Base Reflectivity



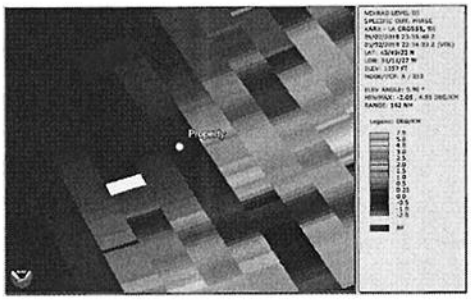
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity

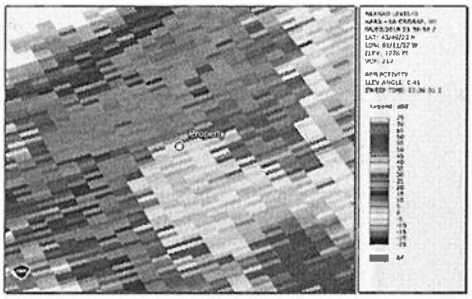


(d) Level III 0.90° Correlation Coefficient

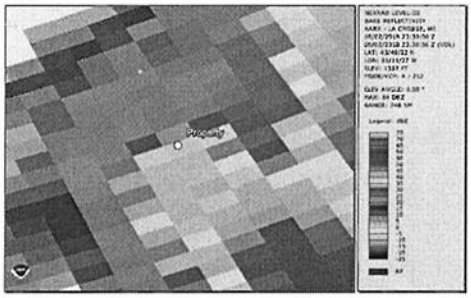


(e) Level III 0.90° Specific Differential Phase

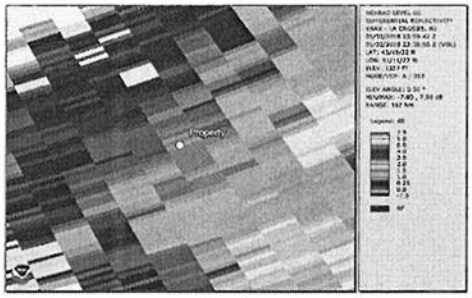
Figure 63: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:34 PM (CDT) on 2 May 2018. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



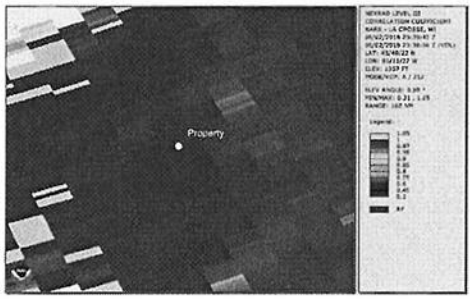
(a) Level II 0.45° Base Reflectivity



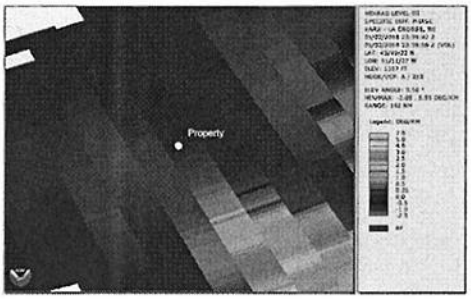
(b) Level III 0.50° Base Reflectivity



(c) Level III 0.50° Differential Reflectivity

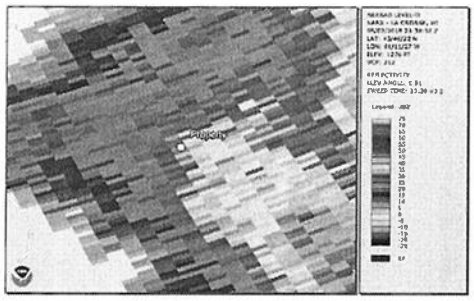


(d) Level III 0.50° Correlation Coefficient

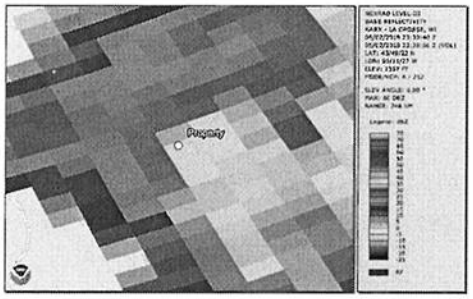


(e) Level III 0.50° Specific Differential Phase

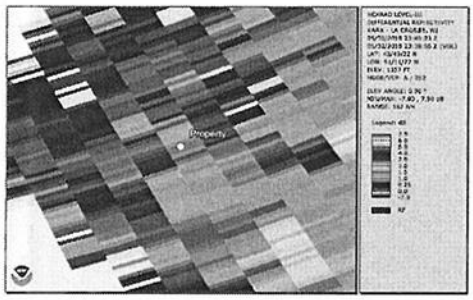
Figure 64: KARX (a) NEXRAD Level II ~0.45° elevation angle Base Reflectivity, and the NEXRAD Level III ~0.45° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:38 PM (CDT) on 2 May 2018. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".



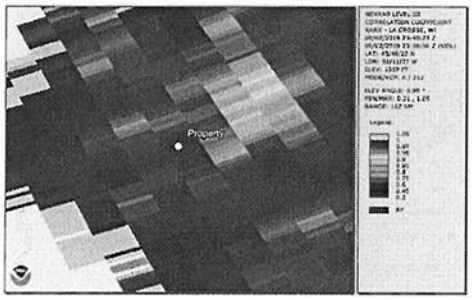
(a) Level II 0.81° Base Reflectivity



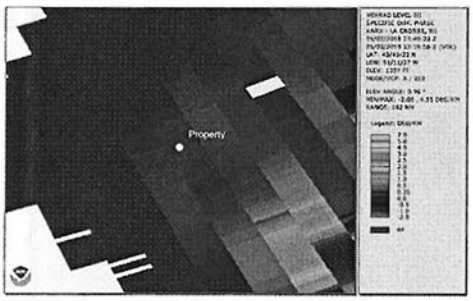
(b) Level III 0.90° Base Reflectivity



(c) Level III 0.90° Differential Reflectivity



(d) Level III 0.90° Correlation Coefficient



(e) Level III 0.90° Specific Differential Phase

Figure 65: KARX (a) NEXRAD Level II ~0.81° elevation angle Base Reflectivity, and the NEXRAD Level III 0.90° elevation angle (b) Base Reflectivity, (c) Differential Reflectivity, (d) Correlation Coefficient, and (e) Specific Differential Phase at 6:38 PM (CDT) on 2 May 2018. Please note these figures were generated using the NOAA Weather & Climate Toolkit. The Property location is identified by the white circle located below and to the left of the label "Property".